

# American Aviation

MANAGEMENT  
ENGINEERING  
OPERATIONS  
MAINTENANCE  
EQUIPMENT



NOV. 10

1952



New Fighter: Exclusive



Military spending  
heads for plateau .. 15



Turbo-compound  
in Navy Connie .... 27




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# AIRTRENDS

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A sizeable packet of aviation jobs in government will be a part of a total of 2,500 top positions that will be available to the new President. For a list of some of them, see third Newsletter page at back of book.

•

The election will bring with it more changes of interest to aviation than have occurred in the last 20 years. An investigation of the defense program, especially aircraft procurement, seems a certainty and a probe of the air transportation situation appears likely.

•

USAF is toying with the idea of a cut-price fighter, with emphasis being placed strictly on speed and fire power. A competition for such a design would mean a limitation on many gadgets and a resulting weight-saving.

•

Government-owned aircraft plants, to be built and run by an organization similar to World War II's Defense Plant Corp., are being given serious consideration. Tentative plans are already being drawn up by the Commerce Department.

•

Only about half of the 14,000 defense contractors who filed returns for last year with the Renegotiation Board will have their reports processed to determine how much of their profits, if any, will have to be returned to the Government.

•

The NPA agency handling materials allocations and tax write-offs for aircraft plants is having its functions consolidated with two other divisions. It will now be known as the Aircraft, Ordnance and Shipbuilding Division.

•

Drawn-out fight over military use of commercial airports and the law requiring the Government to pay its share of costs if military use is "substantial" has led CAA to propose a definition of "substantial." Under CAA's wording, substantial use would mean basing a squadron or larger unit at a field for a month or having either 300 landings and take-offs or 10% of all movements each month.

•

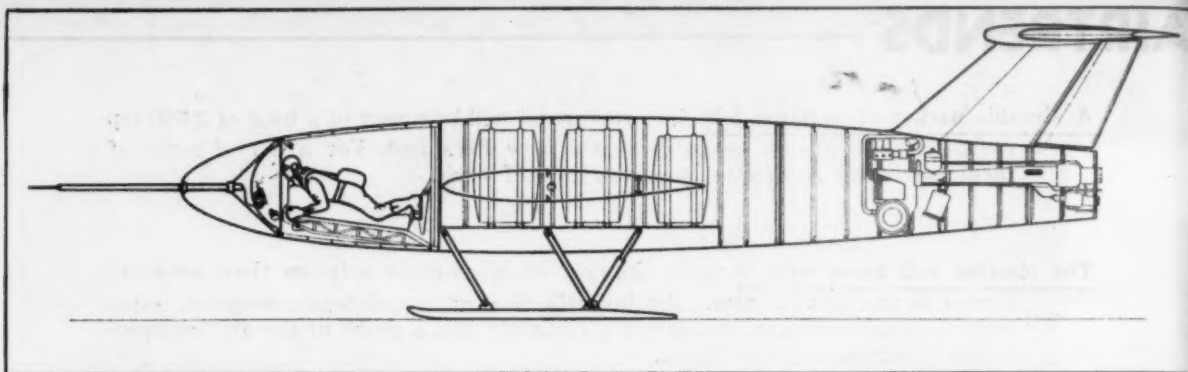
Labor Department survey of all aircraft plants with 200 workers or more shows a postwar employment high of 718,222 in August. A 7.5% increase is expected by next February.

•

Ex-ALPA president David L. Behnke has approached union leaders about some sort of compromise. He may now be willing to give up his claims to the presidency if the union's executive board continues his \$15,000 annual pension.

•

Sabena expects to be able to equal BOAC's Comet time to Johannesburg when it replaces its DC-6's with DC-6B's next spring. Intermediate stops would be reduced from three to two.



PRONE POSITION of pilot, shown above, minimizes physical effects of rocket's high acceleration.

AVS

## Russians Push Rocket Fighter Program

**First details on Red rocket work reveal that fighters may hit 2,500 mph at 200,000 feet.**

FIGHTERS capable of flying at speeds of 2,500 mph at altitudes of 200,000 feet may result from development work now being given top priority, by the Soviet Union in a field somewhat shunned by the West—rocket planes.

New sources in contact with aeronautical research beyond the Iron Curtain have given AMERICAN AVIATION details of how the Russians have utilized German know-how to spark-plug a program which, if realized, may well make the Soviet Union invulnerable to attack by piloted aircraft.

In the activation of their rocket

fighter program in 1948 and 1949 the Russians leaned heavily on the knowledge of German technicians and obtained useful data from the widely published results of the rocket-powered Bell X-1 and Douglas Skyrocket trials in the United States, but development work is now entirely in Russian hands.

Before World War II the Soviet Union rivalled Germany as claimant to the title of the world's most rocket-conscious nation, although its achievements were never publicized. As long ago as 1936 B. N. Yuriev designed an all-wing fighter with a prone position

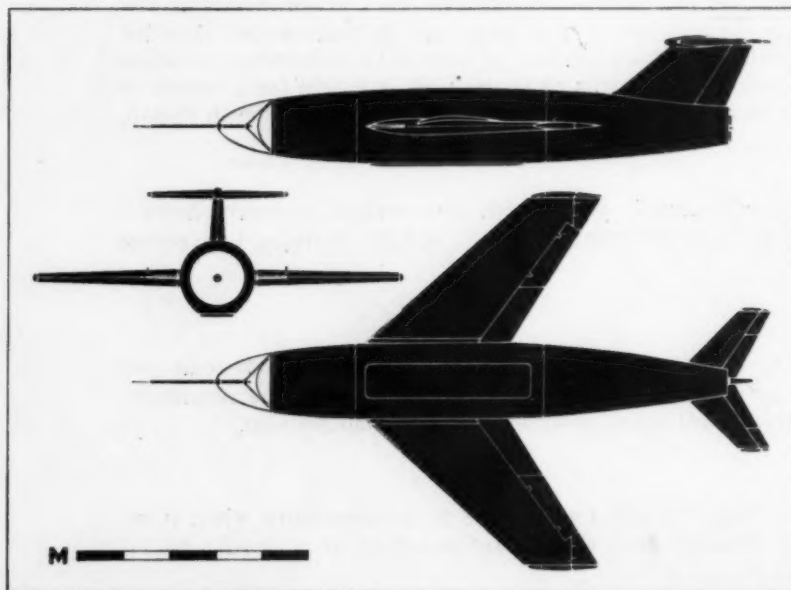
for the pilot, but work on this project was given a low priority rating and was shelved during the war in favor of a simpler rocket fighter (which crashed during its first flight in 1943). The Yuriev model, somewhat resembling the Northrop XP-79B, was finally completed in 1945.

There are three main reasons why the Soviet Union favors piloted rocket fighters rather than guided missiles for interception: the slow progress of defensive missile development; the relative simplicity of the rocket motor's construction; and the traditional Russian belief in hand-to-hand fighting (coupled with inherent distrust of robots).

These considerations have seemingly caused the Soviets to overlook a factor which contributed toward the dropping of rocket fighter development elsewhere in the world: the ability of the human body to function when being hurled through space at speeds four times that of sound and at heights of up to 50 miles above ground.

The Russians have devoted much experimentation to avoid the tremendous strain imposed on the pilot by ground launching, and are currently testing a model equipped with a turbojet engine capable of taking-off and flying without use of its rocket motor. They have tested air launching methods, slavishly copying the American use of a Boeing B-29 as mother aircraft for the X-1. The Tupolev TU-4 (B-29 copy) mother aircraft will continue to be used for the testing of prototype rocket aircraft until a satisfactory ground launching method has been perfected.

Development currently centers around rocket-powered launching trucks which impose less of a strain on the pilot than static ramps. Use of these



THREE VIEWS of current Russian rocket fighter.



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# American Aviation

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November 10, 1952 Vol. 16, No. 12



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**American Aviation Traffic News** (incorporating Air Tariff Reports): Published daily except Saturdays, Sundays and holidays. Subscriptions: \$150 a year. Wallace I. Longstreth, managing editor.

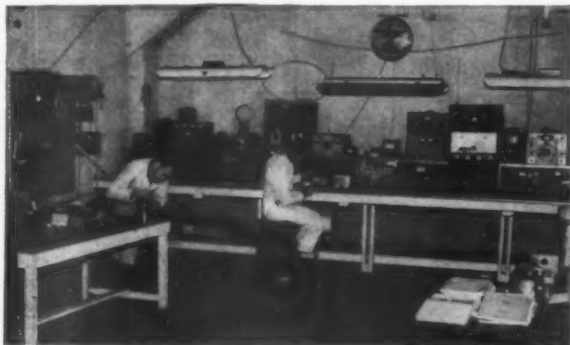
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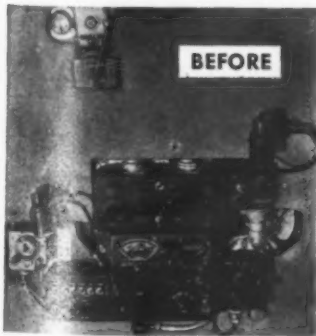
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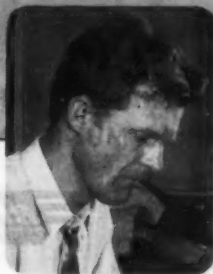
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# Meet Your Editors

**A** LITTLE OVER fifteen years ago, AMERICAN AVIATION's editorial staff consisted of just two people: Editor and Publisher Wayne W. Parrish, who occupied one of the firm's two desks . . . and a reporter: tall, red-headed Eric Bramley, who came with us straight from Northwestern University's Medill School of Journalism.



Bramley

Today, Eric's our Executive Editor, and in addition writes the widely read "Airline Commentary" column. He has not regretted the fact that we have been his first and only employer, for he also enjoys the post of a Vice President of American Aviation Publications, which now has a staff of 21 editors.

As a still-very-young old timer, (born in Scottsdale, Pa., 1916), Eric fondly recalls the early, hectic days when he "covered everything and anything" of vital interest that needed to be covered in the industry.

As a matter of record, Eric has "covered" more aviation news developments around the world than most readers realize. In 1945, for instance, he served as war correspondent to the China-Burma-India area. He has also flown to Africa, England, Canada, and most Caribbean points in search of first-hand news stories. Last year, he traveled around AVIANCA's system in Colombia, down South America. This summer, he spent a full month in Alaska, visiting every airline there for a special series of articles. Eric had a bang-up welcome during his 7,000 mile jaunt through that country. That's because AMERICAN AVIATION is the first aviation publication ever to send someone there for that purpose.

There are many other "firsts" in Eric's career. He covered the international civil aviation conference back in '45. This was the conference that resulted in the formation of ICAO. Eric expected to spend a few days on a routine job, but ended up in a five-week stay, filing copy every day for American Aviation *Daily*, and for the magazine. Again, AMERICAN AVIATION was the only business paper to have an editor present for the full session.

In 1947, Eric flew the Atlantic with the British South American Airways, one of the first transatlantic mid, air refueling experimental flights. He's also been on the first commercial Constellation flight across the nation and has had many a first flight over new airline routes as they were opened up.

During the years, Eric has won six awards in TWA's Annual Aviation Writing Competition.

Between travels and making speeches before airline traffic and sales meetings, Eric manages to relax at his home in Wellington Heights, just outside of Alexandria, Virginia. He's doing right well there . . . with a full future complement of pilots . . . sons Richard, Jerry, and Mike . . . and a potential airline hostess or traffic and sales gal . . . daughter Anne.

## When & Where

- Nov. 11-12—Piper Distributors Annual Meeting, Lock Haven, Pa.
- Nov. 17-20—Air Traffic Conference, Semi-Annual Meeting, Camelback Inn, Phoenix, Ariz.
- Nov. 17-20—National Aviation Trades Assn., Annual Convention, Hollywood-Roosevelt Hotel, Los Angeles.
- Nov. 18-22—National Association of State Aviation Officials, Annual Meeting, Tides Hotel, St. Petersburg, Florida.
- Nov. 19-21—Fourth Annual Safety Seminar, sponsored by Flight Safety Foundation, Hamilton, Bermuda.
- Dec. 3-5—Aviation Distributors & Manufacturers Assn., 10th Annual Meeting, Kenilworth Hotel, Miami Beach, Fla.
- Dec. 3-5—Society for Experimental Stress Analysis, Annual Meeting, Hotel McAlpin, New York.
- Dec. 3-5—Air Transport Association, Airline Finance & Accounting Conference, Statler Hotel, Los Angeles.
- Dec. 4-6—6th Annual Arizona Aviation Conference, Douglas, Ariz.
- Dec. 10-12—Joint AIEE-IRE-ACM Conference on Electronic Computers, Park Sheraton Hotel, New York.
- Dec. 17—16th Wright Memorial Lecture, Chamber of Commerce Auditorium, Washington, D. C., 3:00 p.m.
- Dec. 17—Aero Club of Washington, Annual Wright Memorial Dinner, Statler Hotel, Washington, D. C.

### International

- Dec. 1—IATA, Technical Committee, Brussels.



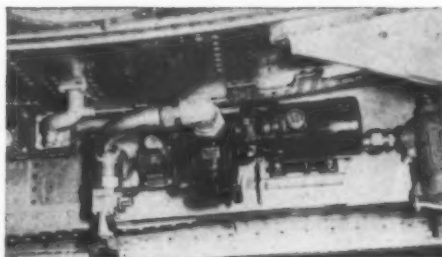


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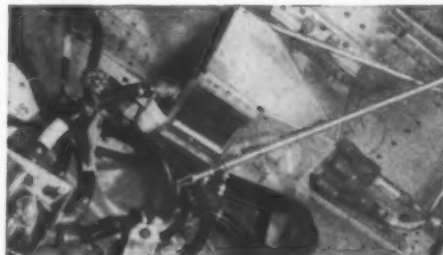
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# Editorial

## Nyrop and the CAB

THE RESIGNATION of Donald Nyrop as chairman of the Civil Aeronautics Board, which came several months before it had been expected, leaves the CAB in a singularly weak position for the time being. President Truman has indicated that he will not make an interim appointment and even if he did the appointment would not carry much weight. The new President will want to make his own selection when he takes office January 20, and such appointment, if it is made within the allotted time, would take precedence over any interim selection named by Mr. Truman.

by  
W. W. P.

Mr. Nyrop proved to be an eminently able chairman, certainly one of the very best, but by the same token his devotion to getting things done rubbed several of his colleagues the wrong way. One member, in particular, has been gushing his dissatisfaction pretty widely and it was inevitable that some of this grouching should reach the press.

Mr. Nyrop took office just at the time a reorganization plan was recommended and, with the consent of his colleagues, he put it into force. Under this plan the chairman became the chief administrative officer of the CAB. No longer would five members take up their time with joint hiring and firing of staff members, no longer would staff members have to report to five individuals, and no longer would five men take up valuable quasi-judicial time discussing and deciding budget matters.

It was a step toward a more efficient CAB and Mr. Nyrop speeded up activity greatly. But it was inevitable, probably, that his colleagues began to feel "left out." It may have been that Mr. Nyrop's own administrative office failed to keep the four members properly informed. But the feature which irked members most was that staff members, with the chairman being responsible for their pay checks, began centering their staff work and their studies and recommendations on the chairman's office with diminishing regard for the other four members.

So it is that with Nyrop's departure, one of the board members, Joseph Adams, has spearheaded a move to dispense with organization efficiency established under the 1950 plan and revert to the old system by which the entire Board dealt directly with all administrative problems. In this drive he is gaining sympathy to a greater or lesser degree from his fellow members, who began to feel that Mr. Nyrop was too much of a dictator.

But the acting chairman, Mr. Oswald Ryan, is a wise old hand at running the CAB.

As vice chairman for a number of terms and as acting chairman for extended periods of time since the Board was created in 1938, Mr. Ryan has served as chairman, in fact, for a longer total time than all but one of the officially appointed eight chairmen.

Mr. Ryan is unquestionably the most useful and able remaining member of the CAB and it is unlikely that he will do much to wreck the reorganization plan of 1950 which led to a speeding up of Board activity. But he will probably make enough concessions to soothe a few ruffled feelings.

Although Board members are protected in their jobs except for dire misdeeds, it seems to us that the four members would be doing a great service to the new incoming President if they would make available their resignations and thus give the new Chief Executive a free hand in making up a new Board. It is not likely that the new President would accept all of the resignations, perhaps none, but it would make a lot of sense to leave the choice up to the White House.

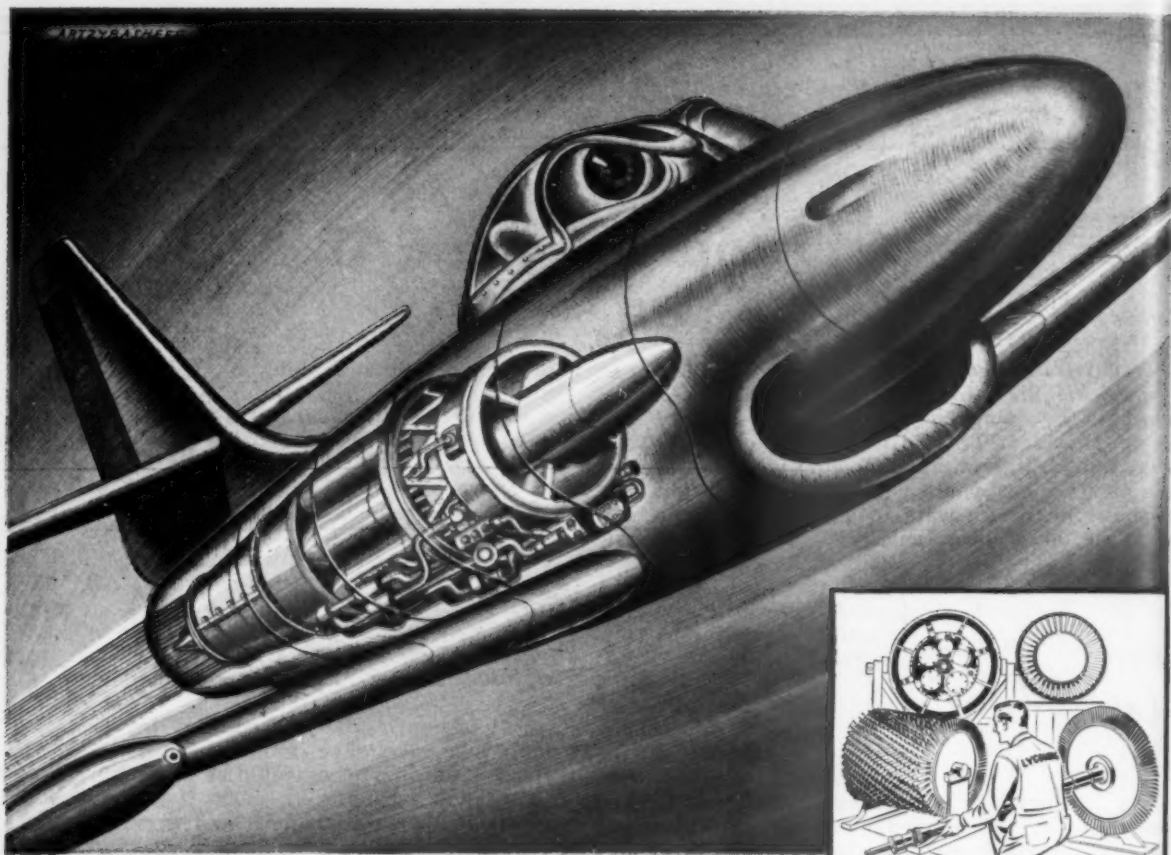
In the meantime, until the new President makes an appointment, it is regretted that the CAB will be without the services of Mr. Nyrop who proved not only to be fair-minded to an extreme, but an excellent administrator and organizer. We trust he will find an important spot in industry where he can put his many talents to good use.

## No. 3 Down

The CAB has now eliminated its third local service airline. First came Florida Airways, then Mid-West Airlines, and now Wiggins Airways in New England. The costs of all three carriers were so high in relation to revenues that continuance was virtually impossible to justify.

Yet in the case of Wiggins the CAB itself is to blame for handicapping the carrier from the start. CAB consistently refused an entry to New York City, without which vital market no carrier in that area could have a fair chance for developing self-sufficiency. Joe Garside, an able pioneer, fought well and hard but the shackling route restrictions enforced by CAB were too much to overcome. The CAB can't be very proud of this one.

. . . WAYNE W. PARRISH



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# Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

## PERFUME BUYER

To The Editor:

Your article "En Route" in your October 13 issue of AMERICAN AVIATION was most interesting. I must admit, I joined the ranks of thousands of American tourists by falling for the story of how perfume is made. Of course, not having any reason to disbelieve them, I was most intrigued by the guided tour of the perfume factory. Looking back now, however, I realize there were no girls at work; in fact, the place was deserted until we reached the so-called showroom and then there were girls galore!

Nevertheless, our main object was accomplished, since the main purpose of our trip to Grasse was to buy perfume in plain containers so that we would not have to pay duty when bringing it into the States. One consolation we do have—there were no guides waiting for us outside to receive commission for bringing us to the factory.

Again thanks for a most enjoyable article.

STELLA CRUZ

Trans-Texas Airways  
Houston, Texas

## NOSTALGIA

To The Editor:

Your "En Route" on page 54 of the September 29 issue gave me nostalgia if we can get nostalgia in two weeks.

I ate in La Table du Roy a short time ago and had that same roly-poly chef go through his act in making up some kind of fish sauce and fish dish for us at one of the so-called "businessmen's lunches" over there, which lasted from 2:00 o'clock until 4:30, so your article reminded me that I ate so much I could not eat any dinner even at 10:00 that night.

Your "En Route" is a wonderful page, and I look forward to it. It adds just a bit more to make AMERICAN AVIATION a truly interesting magazine.

EARLE M. SCOTT

Scott Aviation Corp.  
Lancaster, N. Y.

## THE COMET'S TALE

To The Editor:

Have just finished reading your article about the Comet flight.

I know you've done superb writing jobs before but this one really is more than tops.

Believe it or not, you've converted me to jet transports and if I could only

NOVEMBER 10, 1952

take the time off I'd like to go over the same route that you did.

HARRY BRUNO

30 Rockefeller Plaza  
New York.

To The Editor:

Just a line to say I "flew right along with you" in your Comet I to Singapore. Your certain touch in writing up a somewhat routine event makes it most

interesting and even exciting to your readers.

MASON MALLORY

Western Air Lines  
Hollywood, California

To The Editor:

I wish to convey to you my warm appreciation, and indeed admiration, for your article on the Comet.

# SAVE A FORTUNE

- IN TIME
- TOOLS and
- TUBING

OPEN END RATCHET WRENCH  
PROVIDES THE ANSWER FOR  
RESTRICTED SPACE IN AIRFRAME,  
ENGINE OR CONTROL ASSEMBLIES

WRENCHING OPERATIONS are production line headaches in crowded aircraft plumbing—tubing, conduit, piping, cable or other standing center connections. TAC's OPEN END RATCHET WRENCH slips over tubing, tightens or backs off fittings, slips off again—all in an incredible fraction of the time required by conventional wrench designs. Ratchets in as little as 7° arc of clearancel A clean connection that can't bend or "bark" even softest copper tubing.

With 64 socket sizes and numerous adaptors, the TAC wrench has been termed "A whole hand tool crib under one head." NOW DELIVERING this phenomenal tool in quantity.



### TURNBUCKLE ADAPTOR

Slips into socket head of a TAC OPEN END RATCHET WRENCH. The only tool in existence that permits QUICK RATCHETING of turnbuckles "off" or "on" in literally seconds. Investigate!



**TUBING APPLIANCE COMPANY**  
10321 Anza Avenue, Los Angeles 45, Calif.



Over the Tubing



Down on the Fitting



Now Ratchet!

### SEND FOR CATALOG AND FULL DATA

Facts concerning spanner, aircraft engine Push Rod Housing, Allen Head and other adaptations of the TAC open end ratcheting PRINCIPLE.

Frankly, your piece gave me more pleasure to read than anything I have looked at for many a long day. That elusive quality "readability" was so beautifully apparent, plus a keen appreciation of the itemized features that are so important in creating an overall favorable passenger reaction. And if I may say so, the emotional content was high. Which in this age of harsh realism is a tonic.

SIR MILES THOMAS

Chairman  
British Overseas Airways Corp.

## ORCHIDS

To the Editor:

I have been a subscriber of AMERICAN AVIATION for some years and with sincerity say it has become an even better magazine in the past year and a half. I appreciate the "no holds barred" impartial way you serve the news. For me, living in England (formerly flying with KLM, now for El Al), it not only keeps me informed of aviation in the United States, but of the world. To me the magazine has become indispensable.

CAPT. BOB MOOREHEAD  
Sunninghill, Berks, England

## CARTOON PORTRAITS

To the Editor:

On page 54 of the September 15, 1952, issue of AMERICAN AVIATION, is a veritable masterpiece. That cartoon, pardon me, "portrait," of "The Pilot" is one of the most hilarious items I've seen in a long time. I'm the operations secretary for Wiens, and I also work for the chief pilot, so I have good reason to get a particular chuckle out of that picture.

Do you suppose there is a possibility of my obtaining a copy of the "portrait" that I could hang on the wall of the office here? Of course I may get shot by the first pilot who sees it, but in the meantime my funnybone will sure have had a workout!

I'd surely appreciate a copy if they are available!

CYNTHIA LILLEY

Fairbanks, Alaska

To The Editor:

The pilots and dispatchers of Central Airlines would like to have several copies, suitable for hanging, of Richard E. Chamberlain's cartoon of the keen-minded pilot.

Please advise us how we may get several copies of the same.

NOEL J. JONES, JR.  
Central Airlines

(In response to many requests, reprints of the pilot's portrait are now available at a service charge of 25c each. They are 7 1/2" x 10" and are on heavy paper suitable for hanging—Ed.)

## ANOTHER ALPHABET

To the Editor:

The January 21, 1952, issue of AMERICAN AVIATION, page 17, has an article relative to the phonetic alphabet. I wish to say I concur in the AOPA opinion.

May I suggest for your consideration the use of the phonetic alphabet that has been used by Western Union and the Telephone Company for a number of years.

I am listing this alphabet below:

A—Adam	N—New York
B—Boston	O—Ocean
C—Chicago	P—Peter
D—Denver	Q—Queen
E—Edward	R—Robert
F—Frank	S—Sugar
G—George	T—Thomas
H—Henry	U—Union
I—Ida	V—Victor
J—John	W—William
K—King	X—Xray
L—Lincoln	Y—Young
M—Mary	Z—Zero

F. C. BARKER

Northeast Airlines  
Boston, Mass.



the sign of *top*  
Car Rental Service!

in Hollywood, California  
the National Car Rental  
System Licensee is the  
SAUNDERS Drive it  
Yourself System.

Your customers will appreciate the fine car rental service offered at every NATIONAL Station throughout the country and abroad. You can be sure that when you recommend NATIONAL you recommend the best!

Ask your customers to let you reserve a car for them from the NATIONAL Licensee at their destinations. An easy-operating late model car, filled with gas and oil, will be waiting for them. They'll enjoy the fine facilities and the courteous service they receive at NATIONAL Stations.



Typical of NATIONAL Licensees is SAUNDERS' Drive it Yourself System in Hollywood. Conveniently located, geared for efficient service, SAUNDERS' operations are headed by enthusiastic, friendly, Joe Saunders, Jr., who is always happy to do his best for the traveling public.



NATIONAL CAR RENTAL SYSTEM  
1209 Washington • St. Louis 3, Mo.

## Research Rides a Rocket

*The Naval Research Laboratory's Viking rocket research at White Sands Proving Grounds, N. M., hunts facts, figures and formulas in the upper atmosphere.*

**H**URTLING far into the blue, Naval Research Laboratory rockets ask questions of the earth's upper atmosphere . . . flash back the answers needed to guide the designers of tomorrow's piloted and pilotless super-altitude systems for peace or war. What are the pressures and temperatures of the earth's atmospheric layers . . . the high-altitude changes in the earth's magnetic field affecting navigational instruments . . . the alterations in radio waves caused by the ionosphere . . . the effects of sun spots on communications equipment out beyond the filtering effects of the earth's heavy atmosphere?

Martin Viking rockets play a major role in this high-altitude flight research program. Last summer, the Viking cracked the world's altitude record for single-stage rockets . . . nosing 136 miles into the heavens at a top speed of 4100 m.p.h. Now, an even more powerful Viking is being readied for launching. The Martin Company is proud to be a partner with the Naval Research Laboratory in these vital activities . . . helping to prove that America's most valuable secret weapon is its scientific leadership! THE GLENN L. MARTIN COMPANY, Baltimore 3, Md.

# Martin

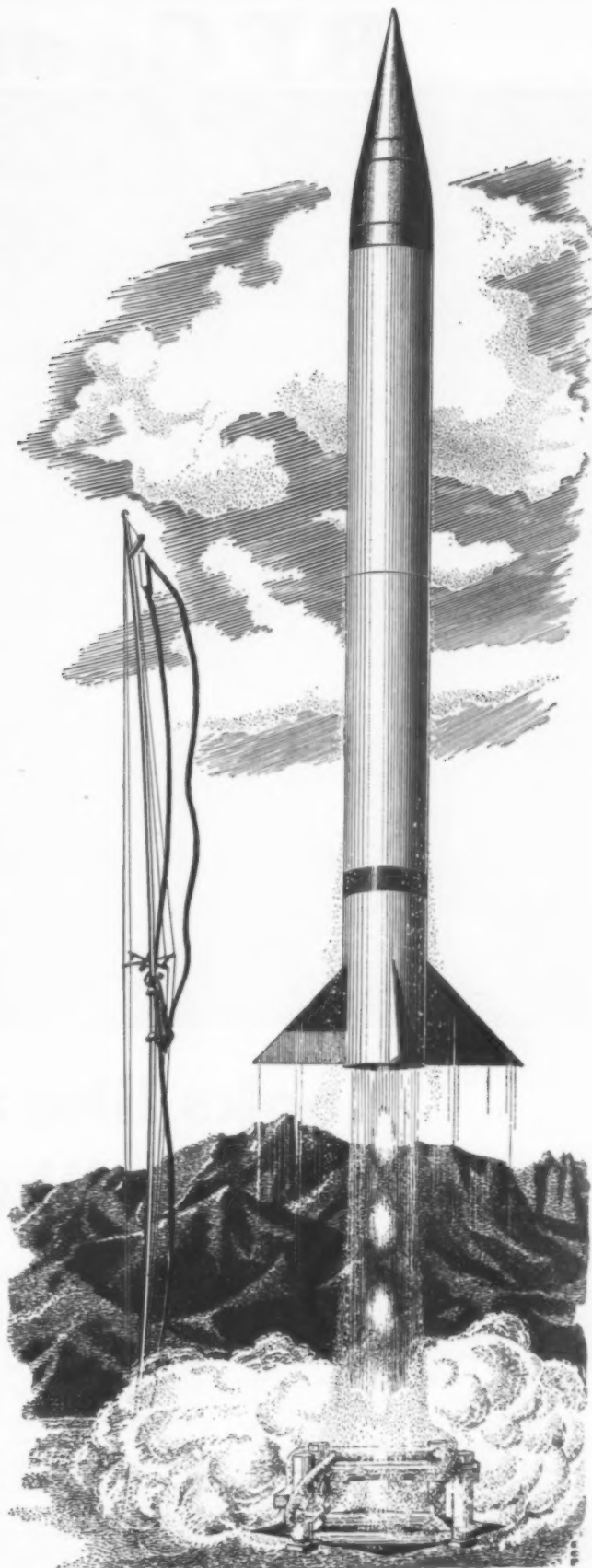


**AIRCRAFT**

Builders of Dependable

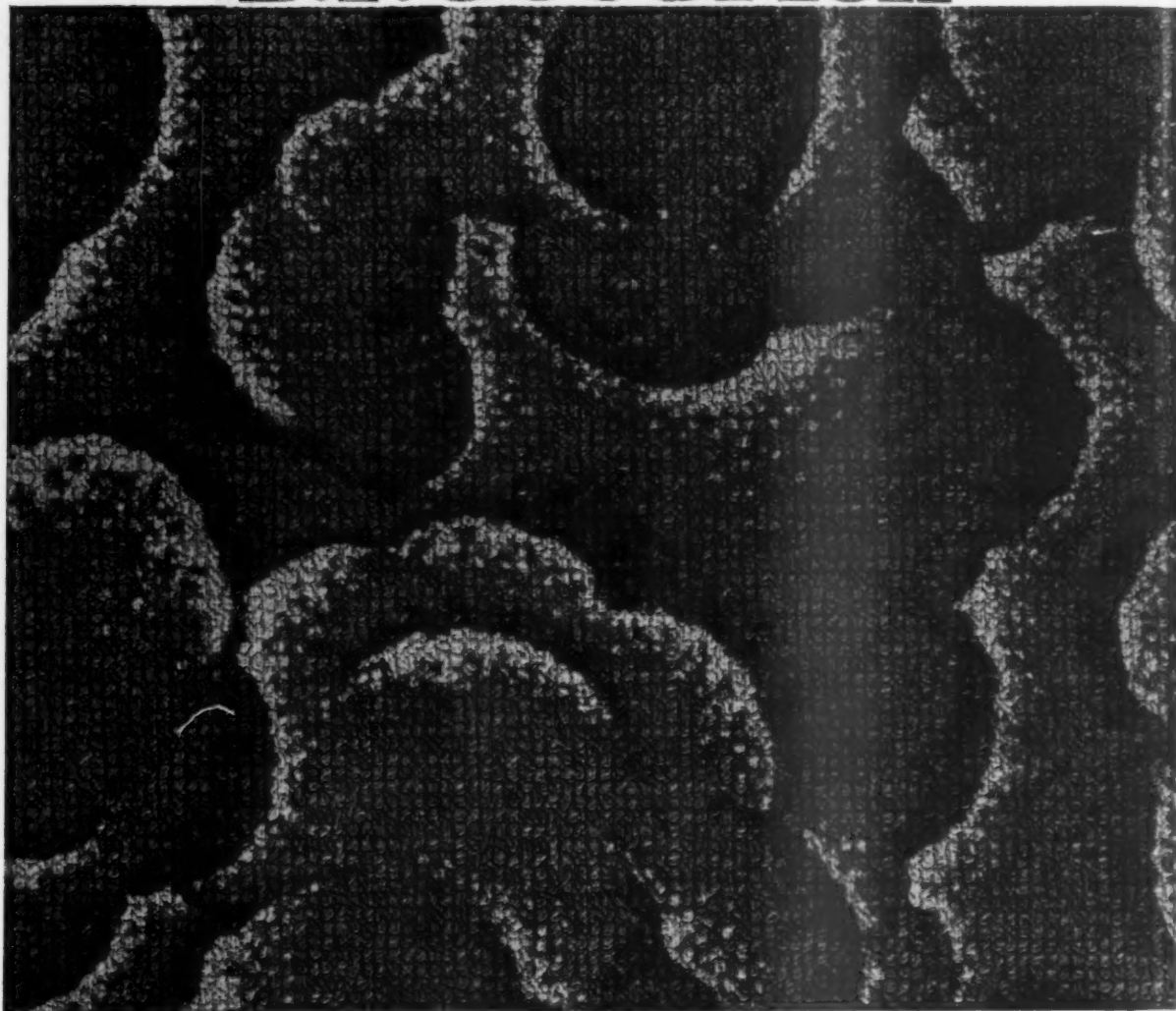
Aircraft Since 1909

Developers and Manufacturers of: Navy P5M-1 Marlin seaplanes • Air Force B-57A Canberra night intruder bombers • Air Force B-61 Matador nuclear bombers • Navy P4M-1 Mercator patrol planes • Navy KDM-1 target drones • Navy Viking high-altitude research rockets • Air Force developmental tactical bomber • Martin airliners • Guided missiles • Electronic fire control & radar systems • Leaders in Building Air Power to Guard the Peace, Air Transport to Serve It.





# B.F. Goodrich



## Looks like a carpet, cleans like a dish

**K**EEPING a commercial airplane's carpet clean used to run into money. The wool carpeting used by airlines trapped dirt, soaked up stains, and got grimy fast. Whenever it needed dry cleaning, which was often, it had to be removed from the plane. Extra carpets had to be kept on hand for quick replacement. And any solution to the problem which sacrificed beauty of the cabin was unacceptable.

Then B. F. Goodrich engineers dressed up their Avtrim flight rug. They developed a process of emboss-

ing colored fabric with crystal-clear Avtrim flexible material. The color and pattern possibilities provided by the new method are practically limitless. With a sponge backing, the comfortable, cushiony feel of rich carpeting is kept.

Besides, the new kind of flight rug far outwears other kinds. It resists scuffs and scratches. It can't be hurt by grease, oil, or any ordinary stains and chemicals. Things that are spilled on it don't soak in, can be easily wiped up. Thorough cleaning is done with soap and

water, without removing the rug from the plane.

Write for samples of the new Avtrim flight rug material. Other BFG products for aviation include: tires, wheels and brakes; heated rubber; De-Icers; Plastilock adhesives; Pressure Sealing Zippers; fuel cells; Rivnuts; accessories. *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

**B.F. Goodrich**  
FIRST IN RUBBER

AMERICAN AVIATION





## Military Spending Heads for a Plateau

Estimated drop in appropriations is no cut-back, but reflects gradual approach to build-up goals.

By JAMES J. HAGGERTY, JR.

THE ANTICIPATED drop in military aircraft procurement money will come in the fiscal year 1954 barring a new emergency, it has been learned, and the gigantic backlogs of aircraft manufacturers, now ranging as high as \$2 billion, will seek a new and lower level as deliveries increase and new orders take on less gargantuan proportions.

This information came to light as the three military services completed their budget requests for the coming fiscal year and passed them on to the Secretary of Defense for the start of the reviewing process. They must be reviewed by Secretary Lovett, then by the Bureau of the Budget, and finally by the President, before submission to Congress in January.

The defense budget will be considerably lower than this year's; Lovett has confirmed that much, without in-

dicating how much lower it will be. Informed sources say that the combined budget of the three military services will be \$41 billion, some \$5.5 billion less than the fiscal 1953 budget. This, however, is not the complete defense budget; it does not include operation of the Office of the Secretary of Defense, military construction and public works, the foreign aid program, and a variety of other expenditures. The total direct defense budget will probably run close to \$50 billion.

The \$41 billion, according to reliable information, is broken down as follows: \$17 billion for the Air Force, \$13 billion for the Army, \$11 billion for the Navy. Thus, the Air Force remains "top dog" in defense appropriations, but the Army and Navy exchange positions. This is not an indication that Naval strength will get less emphasis. Army appropriations must go up to finance attrition of weapons and ammunition for the Korean war.

Almost all of the \$5.5 billion drop in the service budget will come out of procurement money. It is estimated that the combined Air Force and Navy procurement figure will run less than \$9 billion. Of this, it is estimated that the Air Force will get about \$6.5 billion or slightly more.

This is a sharp drop from fiscal 1953, when the two services were given \$14 billion for procurement of aircraft and related equipment. The Air Force figure alone in 1953 (\$10.5 billion) was greater than the expected combined total for 1954.

At first glance, this would appear to presage another "stretch-out" of the Air Force and Navy expansion programs. It is not however. The drop in procurement money marks the start of an orderly leveling-off process as originally planned. The current Department of Defense personnel strength of 3,600,000 will be maintained throughout fiscal 1954 and the Air Force and Navy expansion programs will continue on schedule.

It must be borne in mind that actual deliveries of aircraft for these expansion programs lag two to three

years (and in some cases even longer) behind Congressional appropriations. Thus, orders placed during fiscal 1952 and 1953 are for planes to be delivered in 1955 and early 1956. If the Air Force goal of 143 wings is to be reached on January 1, 1956 (the consensus among a number of conflicting official and unofficial estimates), then the orders placed out of fiscal 1953 money will account for almost all the remaining *build-up* aircraft.

Once the 143-wing strength is attained, it necessarily follows that the procurement level can drop off. Fiscal 1953 money, for instance, must purchase not only new aircraft for the 50 wings yet to be activated, but also replacement aircraft for those lost in combat or in Stateside attrition. Fiscal 1954 money will probably include purchases of a small number of tail-end build-up aircraft, but the major portion of it will go for replacement aircraft. Thus, the procurement drop in 1954.

### Modernization

Modernization of the Air Force (and the Navy, too) will be the procurement aim after January 1, 1956. The planes now rolling off the lines cannot go on forever; a large number of them are interim types, the current crop of all-weather interceptors, for instance. Only the Northrop F-89 in that category is a new design; the Lockheed F-94C and the North American F-86D are modifications, or "stretches," of previous types.

They must be replaced by new interceptor types, such as the Convair F-102 delta-wing supersonic fighter. New planes like the North American F-100, also supersonic, will eventually replace the F-86 Sabre. Boeing's B-52 will take over the duties now handled by the Convair B-36 and the Boeing B-47 will replace the piston-engine B-29's and B-50's now in service in the medium bomber category.

All along the line new planes are coming along to replace the interim types which will initially comprise the 143-wing Air Force.

All of these replacement type planes are now in production, but initial production, ordered out of fiscal 1952 or 1953 funds, is limited in most cases and it will be stepped up in fiscal 1954.

The fiscal 1955 budget is hard to predict, but it should be lower than 1954, because no build-up planes are involved. Just how much lower is difficult to ascertain, since the 1955 program will involve new, more complex aircraft which are necessarily more costly. It is conceivable that, although the number of planes to be bought from fiscal 1955 funds will be fewer, the

money total might be higher, if costs continue to rise at the current rate.

In the accompanying chart, 1955 procurement is estimated at \$5.5 billion, based on current costs. The rate for succeeding years should stabilize at about that figure, with, of course, adjustments for price differential.

As Navy and Air Force procurement funds drop off, Army aircraft money will be on the rise. This is reflected in the current year's request, in which the Army is asking for over \$200,000,000 for aircraft procurement, largely helicopters, compared with \$36,000,000 in fiscal 1953.

### Army Expansion

While the Air Force and Navy are approaching their peaks, from the standpoint of deliveries of planes, the Army aircraft expansion program is in its infancy. Every day the Army is finding new and varied uses for light aircraft and helicopters, and it is entirely within the realm of possibility that the Army program may soon surpass the Navy program from the standpoint of numbers of planes, although it is doubtful that Army plane funds will reach Navy proportions in the near future, since Army equipment is considerably less costly than the plane types bought by the other two services.

The fiscal 1954 budget requests went to Secretary Lovett last week. At the moment, the \$41 billion figure represents only a planning base, and it is subject to adjustment. These adjustments, within Lovett's office or the Bureau of the Budget, should be relatively minor, so the budget presented to Congress should be somewhere near that figure.

The big question is what will a new Congress do with it? The current batch of Congressmen is pretty well educated to the demands of air power, as has been demonstrated by Capitol Hill support of the expansion programs over the past two years. A change of personnel, however, could upset the applecart when the goal is in sight.

## Sikorsky Sees Single Large Rotor in Future

The man who has been experimenting with helicopters since 1909, Igor Ivan Sikorsky, said in an exclusive interview with AMERICAN AVIATION that most future helicopter designs would be of the single large rotor design with a small anti-torque propeller in the tail. This will come about, according to Sikorsky, because the single large rotor,

like the fixed wing monoplane, does not suffer the serious aerodynamic disadvantages of having two major lifting devices operating in close proximity, as do the biplane or tandem rotor helicopter.

The 63-year-old engineering manager of Sikorsky Aircraft Division, United Aircraft Corp., who foresaw transatlantic flights when such things sounded like a trip to the moon, predicted these other developments in the rotorcraft field:

- **Military convertiplanes** in the 300 to 400 mph class, requiring from 300 to 1,000 hp per passenger;

- **Most helicopters** of more than 10 or 12 passengers will be driven by two or more reciprocating or jet engines and will be capable of flying with one engine dead;

- **The majority** of the power transmitting designs will be of the gear transmission type, thereby minimizing blade tip drives;

- **Machines capable** of carrying more than 100 passengers will be available within a decade and larger craft can be built. Only economics will limit the size;

- **The helicopter** will become the fastest and most convenient transportation for trips of up to 100 miles and in some cases will be the most economical.

## Sawyer Asks CAA for Airport Aid Review

Secretary of Commerce Charles Sawyer has issued an order to Civil Aeronautics Administration to review the Federal Airport Program as a basis for seeking additional funds to speed up the nation's airport development. On completion of the review, Sawyer will probably ask Congress for more money to carry out the new program.

In the fiscal year ending June 30, 1953, the CAA has programmed Federal aid totaling \$9,900,000 at 169 locations. The appropriations are being used for improvements and Sawyer would like to see new airports getting underway.

CAA has tentatively allocated the remaining \$13,000,000 left from the \$195,000,000 appropriation granted under the Federal Airport Act of 1946 for a seven-year period. Local communities have raised about \$75,000,000 of an estimated \$157,000,000 needed for various programs. It is now up to the government to match these funds. The communities have indicated that they could easily raise the balance of their share, once Federal funds became available.

# News Roundup

## PEOPLE

Representative O'Konski (Rep., Wis.) has thrown another log on the fire which he has kept burning under Kaiser-Frazer for some time now. In a letter to Secretary of Defense Lovett, O'Konski has demanded a detailed report on K-F's defense contracts, viewing with alarm that firm's mid-year profit of \$2.5 million on \$92 million in defense work.

The shadow that the Comet has cast over American transport leadership is not half as dark as it seems, in the opinion of Frederick B. Rentschler, chairman of United Aircraft Corp. Bright spot in the picture, according to sharp-eyed Rentschler, is that it will be eleven years before jets are available in fleet-replacement quantities.

Donald A. Duff, executive vice president of Wisconsin Central Airlines, is recuperating from a major operation and will probably be out of the office for several weeks.

Canadian-built Britannias presumably have come a step closer with the visit to Canada of Bristol Aeroplane Co.'s managing director, W. R. Verdon Smith, who talked with big names in Canadair, the government, the military, and Bristol's Canadian subsidiary.

As far as E. V. Rickenbacker is concerned, Eastern is still planning to get along without ATA, come the first of the year, although "developments" might bring the carrier back into that organization's fold.

Changing of the guard at CAB was marked by a luncheon honoring outgoing chairman Donald W. Nyrop. Present were members Lee, Adams, Gurney, and Oswald Ryan, appointed chairman for the remainder of the year by President Truman.

The American Society of Travel Agents has itself a new president in the person of Laurance C. Tombs, of Montreal, Canada. Elected with Tombs at ATA's annual convention in Miami was Vice President R. T. Bellchambers.

America's first civilian pilot, Walter B. Martin, received the Veteran Pilots Association annual award of achievement from round-the-world flyer Jimmy Martin at a Hollywood meeting of Southern California's Aero Club.



ARTIST'S VERSION of prototype jet transport, the Hurel-Dubois HD45, which is scheduled to be produced for test purposes (See story page 80).

Steadham Acker, 56, former manager of the Birmingham Municipal Airport and director of Birmingham's National Air Carnivals, died late last month of a heart attack.

## FINANCIAL

Bell Aircraft's nine month net profit up to September 30 stood at \$1.6 million (on sales of \$55.7 million), as compared with \$1.2 million for the same period in 1951.

Republic Aviation almost doubled its backlog between September 30, 1951, and the same date in 1952, bringing its total to more than one billion. Net income for the first nine months in 1952 was \$4.1 million on \$215 million in sales. Comparable 1951 figures were \$2.1 million on \$83 million.

Both Western Air Lines and Northwest Airlines have reported net profits of over \$900,000 for the first nine months of 1952. The WAL figure was \$916,000. NWA's profit of \$962,634 for the period represented a slump from \$1.4 million in the same 1951 period, although 1952 revenues reached \$41 million, up nearly \$5 million. All American Airways likewise had bad news to report for the fiscal year ended June 30, in which it lost \$290,828, an unpleasant change from the profit of

\$4,660 which it showed during the previous 12 months.

For United Air Lines the picture was brighter. UAL declared its regular quarterly dividend of 25 cents per share and threw in another 50 cents per share for good measure, bringing common stock dividends to \$1.50 per share this year.

Delta Air Lines likewise had dividend news to make as its board of directors declared one of 25 cents per share of common stock, the fourth such dividend for 1952. Increase in the capital stock was authorized from one million to one and one half million shares.

Record making profits were chalked up by United Air Lines in its first nine months, with operating revenues coming close to \$119 million. For Capital Airlines, net income after taxes went just over the one million mark for the quarter ended September 30, a record for that line. Deceptively small 10% profit rise was registered on Chicago & Southern Air Lines' cash registers for the first nine months, since last year's figure for that period was bolstered by non-recurring income. On operations, however, there was a 58% increase in profit on an 18% operating revenue boost.



Local service lines fought a losing battle with rising operating costs during the first half of 1952. Although operating revenues went up 12% to a total of \$19 million, operating expenses climbed faster, for an increase of 19%. Net loss on operations: one million at mid-year.

Jack & Heintz, Inc., has reported orders totaling \$3.2 million for the period from September 16 to October 16, bringing its backlog to \$52.5 million.

Thompson Products, Inc., came close to matching its 1941 profit record during the first nine months of 1952, as its net reached \$6.1 million on sales of \$189 million.

California Eastern Airways reports a net profit of \$133,151 from consolidated operations of the company during the first half of this year. Non-recurring income brought the total to \$948,505.

## MILITARY

The helicopter will account for \$200 million of the Army's 1954 budget, but if it is to make its way it will have to become simpler and more economical to operate, according to the Transportation Corps' Col. William B. Bunker. Spreading use of the craft is typified by the recent announcement that they will be officially made part of medical units.

This month should see the first production model of Republic's F-84F swept-wing Thunderjet coming off the line.

Latest in the growing string of jet engines is the Pratt & Whitney J-75, which boasts well over 10,000 pounds thrust.

The USAF guided missile operation at Holloman AFB, Alamogordo, N. M., will be Holloman Air Development Center from now on.

## MANUFACTURING

A second order for McDonnell F3H Demon carrier-based jet fighters has been given to Temco Aircraft Corp. by the Navy.

All the outstanding stock of Babb Co., Inc., has been purchased by Atlas Corp. No change in management is contemplated. Atlas will have the advice of Ray O. Ryan, formerly vice-president-manufacturing of Consolidated Vultee Aircraft Corp., who will now serve as consultant to both Convair and Atlas.

Licensing of Napier engine production on this side of the Atlantic may be in the wind, observers have speculated following the arrival of Sir Conrad Collier, who might be talking business about the Naiad and Eland turboprops and the Nomad compound.

## EQUIPMENT

Over 400 four-engine airliners have been bought from Douglas since the end of the war, most of them (362) being DC-6's. Pan Am order for five more DC-6B's brought the total to 420. Pan Am's order for three Comet III's, on the other hand, brought de Havilland's sales total on that airplane to 46, with six more reported due soon.

United Air Lines, presumably impressed by de Havilland's 46 sales, has announced that 1958 is the "earliest possible date" for jet transport operations on a profitable basis. UAL's third quarter financial report assures its stockholders that United has been looking forward to using jets, but not yet.

Pan American's Boeing Stratocruisers will switch to the Pacific from Latin America as soon as more DC-6B's arrive to replace them there.

A 50% improvement in performance is expected from the new model of the Sikorsky S-52-2 helicopter, thanks mainly to a larger engine, when it flies by mid-1953. Production is expected a year later.

## INTERNATIONAL

Japanese defense plans involve the purchase of American trainers for the training of 500 fighter and bomber pilots.

Atlantic service is 13 years old to Pan American. A recent New York-Lisbon-South Africa departure marked the 40,000th flight.

If American carriers want trans-Pacific coach fares they will have to sell the CAB on the idea, since that agency can see no excuse for them right now, it informed the airlines on the eve of IATA traffic conferences in Cannes, France.

## TRAFFIC

Impressive growth showed up in the August traffic results for both the domestic trunks and the U. S. international carriers. Revenue passenger-miles were up close to 1.2 billion for the domestic carriers in that month, as com-

pared with a tally of 969 million last year. International lines were up almost one third over last August's total, reaching 327 million revenue passenger-miles.

Convair 340's were inaugurated on Braniff Airways' Corpus Christi-Denver route the first of this month, and the carrier expects to have its entire order of 26 flying within the next five months.

Twice the Super Constellation service for TWA passengers between New York and San Francisco was slated for November 1. On that date, the carrier announced, it would up its daily trans-continental flights to four.

## TECHNICAL

Difficulties inherent in jet operations across the Atlantic include the problems of variable adverse winds at high altitudes (40,000 feet) and braking jets to a stop on ice-coated runways, according to BOAC chairman Sir Miles Thomas.

Greater performance through higher temperatures in jet engines should be made possible by a new heat-resistant titanium carbide, called Kentanium. Turbine blades made of the metal have been operated at 1,800° F., as compared with the 1,500° which is par for the course in current jet engines.

Air turbine starter production got off to a flying start at AiResearch in Phoenix when the first starters were delivered to the Navy two weeks ahead of schedule.

At least one railroad is interested in getting into the air carrier act via the helicopter. The Baltimore and Annapolis Railroad Co. has applied to the CAB for a certificate to use 'copters for passenger, cargo and mail operations between Washington and New York.

Just over 300 planes in the light-plane category (under 10-place) were shipped during September. Dollar value was \$2.5 million. Total for previous month: \$2.8 million for 322 planes.

## LABOR

A company-paid pension plan offered by Curtiss-Wright has been accepted by its AFL-Machinists in the Propeller Division. Same plan was recently accepted by UAW-CIO workers in Wright Aeronautical.

Retroactive pay to the tune of some \$4 million has been distributed by North American Aviation in its California and Ohio plants. Increases were retroactive to April 28, 1952, under terms of agreements with four unions.



## Where Planes Will Come From

Owner	L-649							Total
	DC-4	DC-6	DC-6A	DC-6B	L-049	L-749	B-377	
Alaska Airlines .....	2	..	..	..	..	..	..	2
American Airlines ..	14	7	3	18	..	..	..	42
ARAMCO .....	1	..	..	2	..	..	..	3
Braniff .....	4	5	..	..	..	..	..	9
California Aircraft Co. ....	1 <sup>1</sup>	..	..	..	..	..	..	1
California Eastern ..	2	..	..	..	..	..	..	2
California Hawaiian ..	..	..	..	..	1	..	..	1
Capital .....	2	..	..	..	5	5 <sup>2</sup>	..	12
Carmas Supply Co. ....	1 <sup>2</sup>	..	..	..	..	..	..	1
Chicago & Southern ..	..	..	..	..	..	3	..	3
Delta .....	5 <sup>3</sup>	..	..	..	..	..	..	5
Eastern .....	11	..	..	..	..	18	..	29
Flying Tiger Line ..	2	..	5	..	..	..	..	7
National .....	6	..	..	4	..	..	..	10
Northwest .....	6	..	..	..	..	..	3	9
Ocean Air Tradeways ..	4 <sup>4</sup>	..	..	..	..	..	..	4
Pacific Northern ...	1	..	..	..	..	..	..	1
Panagra .....	4	..	..	1	..	..	..	5
Pan American .....	19	..	..	..	..	..	15	34
Seaboard and Western .....	5	..	..	..	..	..	..	5
Slick .....	..	..	5	..	..	..	..	5
Trans Caribbean ...	3 <sup>4</sup>	..	..	..	..	..	..	3
Transocean .....	3	..	1	..	..	..	..	4
Twa .....	11	..	..	..	16	21	..	48
Twentieth Century Aircraft Co. ....	1 <sup>5</sup>	..	..	..	..	..	..	1
United .....	5	11	..	19	..	..	6	41
U. S. Overseas Airlines .....	1	..	..	..	..	..	..	1
Western Air Lines ..	..	..	..	5 <sup>7</sup>	..	..	..	5
Western Sky Industries .....	1 <sup>6</sup>	..	..	..	..	..	..	1
<b>TOTAL ...</b>	<b>115</b>	<b>23</b>	<b>14</b>	<b>49</b>	<b>22</b>	<b>47</b>	<b>24</b>	<b>294</b>

<sup>1</sup> Leased to and operated by Hemisphere; <sup>2</sup> Leased to and operated by Cal-Eastern; <sup>3</sup> Leased to and operated by U. S. Overseas; <sup>4</sup> 2 leased to and operated by Cal-Eastern; <sup>5</sup> Leased to and operated by Transocean; <sup>6</sup> Leased to and operated by North American; <sup>7</sup> Leased to and operated by Transocean; <sup>8</sup> Future orders—N—numbers unknown; <sup>9</sup> tentative.

Another interesting aspect of the newest CARF program is that the earlier practice of separating airline aircraft into three categories—first line, second line, and permanent second line aircraft (AMERICAN AVIATION, April 14)—has been eliminated, at least in the publicized listings, although it is understood such a breakdown still exists for actual planning purposes.

Trans World Airlines is the most seriously affected by the proposed program, both in terms of the change since the last program was released and in terms of total number of aircraft lost. In the event of an emergency requiring these aircraft, TWA would give up 48 planes, including 21 Lockheed L-649 and L-749 aircraft and eleven Douglas DC-4's. This compares with 25 planes which TWA was to have given up to CARF under the earlier program.

### Other Shifts

Other major shifts in the allocation include:

- Capital Airlines tabbed for 12 airplanes, versus five on the old schedule.
- Braniff Airways tabbed for nine airplanes, versus six on the old schedule.
- Northwest Airlines tabbed for nine, compared with 18 on the old schedule.
- United Air Lines tabbed for 41 planes, compared with 52 on the old schedule.
- Eastern Air Lines tabbed for 29 planes versus 23 on the old schedule.

The military services do not take title nor ownership of these aircraft. They simply lease the planes and crews under the terms of contracts now being worked out. Two sets of contracts are involved. The first is for the modification of all these aircraft (fuel system standardization, addition of navigation systems, etc.) for 48-hour conversion for long haul operations. The first of these contracts, all of which will be on a cost plus fixed fee basis, is now about completed.

The contracts covering lease of the airplanes and crews, which will be fixed price contracts, are still in a preliminary stage. Actually these will be contracts under which the airlines agree to lease the airplanes when they are required. When the emergency arises Wright Field officials will issue a service contract outlining the specific needs covered in a general manner by the earlier contract.

The present arrangements are such that the airline should not suffer from the arrangement other than by the loss of capacity. They are assured of continued ownership of the aircraft and can arrange war risk insurance with the government to assure against the possible loss of the planes.

## Mobilization Fleet Review Reveals Shifts

Total drops from 400 to 294 aircraft; carriers' participation changes in first revision of plan.

THE FIRST review of the Civil Air Reserve Fleet, the 294 four-engine airline aircraft that will be drafted into military service in the event of a national emergency, has been completed by the Defense Air Transportation Administration. Facts on the review have been late being released, the review having taken place in June, and already another review is near at hand, the next one being scheduled for January.

Most noticeable factor about the review has been the shift in the allocation of aircraft within the airlines and a reduction in the overall number of aircraft involved from the originally estimated 400 planes down to 294.

Despite the latter downward reduction, there is a strong feeling that the next review may raise the total

number appreciably, possibly to 350 planes, as the demands of the various branches of the military services are weighed and accounted for.

Of the 294 planes pinpointed for military use in the CARF, 270 are those of the scheduled domestic and U. S. international airlines; 23 are from the non-scheduled airlines; and one is owned by a corporate user.

The planes were chosen according to the so-called Korean Formula, under which they are taken from the lines which would be least hurt by their loss. This means that in some instances some airlines might give up several consecutive aircraft while others lost none. Actually the loss to the carriers will average out at about 40% of their presently available ton-mile capacity.



TESTING of J-65 involved use of special mounting on B-17.

## Wright Sapphire Seen Production Feat

**New power plant for USAF was brought into production in short order despite difficulties.**

By JAMES J. HAGGERTY, JR.

SOME TIME this month, the first production model of a new Air Force fighter will roll off the line at Republic Aviation Corp.'s Farmingdale, L. I., plant. The plane is the F-84F, destined for large scale production and slated to be the mainstay of the tactical air fleets of the U. S. Air Force and its North Atlantic Treaty Organization counterparts.

### Swept-Wing Thunderjet

The F-84F is a swept-wing version of the familiar Thunderjet now in wide USAF service and starting into service with several NATO air forces. Its performance, compared with that of its predecessor models in the Thunderjet family, is considerably improved, due partially to aerodynamic improvements such as the swept wing, but chiefly to the installation of a new, higher thrust power plant.

The engine is the Wright J-65 Sapphire, which is making its USAF service debut in the F-84F. And therein lies a story—a story of a remarkable achievement in taking a British-designed engine, converting it to American specifications, building up for major production and getting it into a production airplane, all in the relatively brief period of 16 months from the go-ahead signal to delivery of the first production engine.

Actually, the first five engines were delivered less than a year after receipt of a contract, but these were pilot line engines rather than actual production engines.

Behind the delivery of the first production engine were more than 5,000 hours of flight and ground testing of the Sapphire, or nearly eight hours a day from the time the contract was placed.

This achievement is all the more remarkable when it is considered that, to handle the assignment, the contractor had to more than double his employment, increase his available manufacturing space by about 50%, help get some 3,000 subcontractors started on the program, establish three new company divisions to handle detail work on the engine, undergo a complete plant rearrangement to make room for the Sapphire, procure machine tools at the height of the tool shortage, and continue to turn out four other engines at the same time.

Yet, surprisingly, the progress of the Sapphire program has come in for considerable criticism. The controversial staff study prepared by the Aircraft Production Board stated that the program was behind schedule and suggested that production of the engine be cancelled.

Admittedly the program is behind schedule, or at least behind a schedule.

It depends on which schedule one is reading. If it is the pre-stretchout schedule, then assuredly the Sapphire program is lagging; so is production of every other military engine and airframe.

But in the face of the problems which plagued the industry in getting the post-Korea expansion program under way, it was certainly bald optimism to have expected to turn out production units of a British engine in less than 16 months. Under Secretary of the Air Force Roswell L. Gilpatric has admitted to such optimism—"over-sanguine" is the word he used.

### Priorities Not Met

Aside from the optimism about scheduling, there was another factor, pointed up by Lt. Gen. Orval R. Cook, Deputy Chief of Staff, Materiel. The conditions under which Wright Aeronautical Division undertook the Sapphire program—priorities on machine tools, materials, etc.—had not been met.

When the first F-84F rolls out, Wright will have been engaged in the Sapphire program less than two years. The initial contract was signed on December 15, 1950. But before even a start could be made on the program, there were certain preliminaries to get out of the way.

All of the British drawings, provided by Armstrong-Siddeley Motors Ltd., had to be converted to American specifications. This was completed on February 23, 1951, which might actually be considered the production starting date as far as Wright is concerned, in which case the production time would be shortened to less than 14 months.

### No Mass Production

The Sapphire had not been in mass production in Britain, as is the case with any British engine the U. S. has taken over for manufacture here. The Sapphires built by Armstrong-Siddeley had been hand-tailored like a Bond Street suit. Thus, Wright had to develop completely new production techniques for the engine, rather than copy previous production methods, as is the case when an American licensee takes over production of another American manufacturer's engine.

In February, 1951, the prototype XF-84F made its first flight. Power plant for the prototype was a British-built engine reworked to American standards.

Due to the extent of the requirements for the J-65 Sapphire, Buick Motor Division of General Motors Corp. was also licensed to produce the engine. Just eight days later, Buick received its first shipments of American drawings of the Sapphire.

The "broadening-the-base" program was in full tilt at that time, and the Air Force urged that Wright subcontract a major portion of the Sapphire program. (70% of the Sapphire is subcontracted.) This taxed anew Wright's facilities, for it was necessary (a) to find qualified subcontractors and suppliers in an atmosphere of uncertainty as to the military outlook, (b) to evaluate the potential of these subcontractors, (c) to assign them production of the parts they could best handle, and (d) to get them started on their assignment.

#### Licensing

Meanwhile, Wright was involved in another major operation. In order to make room in its own facilities for production of the J-65 and its other major engine, the R-3350-30W Turbo-Compound piston engine, Wright licensed out production of its R-1300 Cyclone 7 trainer engine, R-1820 Cyclone 9, used in trainers, transports and helicopters, and the uncompounded R-3350 piston engine used in Navy patrol and attack bombers.

Wright transferred manufacturing techniques on these engines to its licensees, Kaiser-Frazer, Lycoming-Spencer and Chevrolet respectively, at a time when engineering help was hard to come by. These engines were to have been phased out a year ago, but actually the licensees did not take over completely until last month.

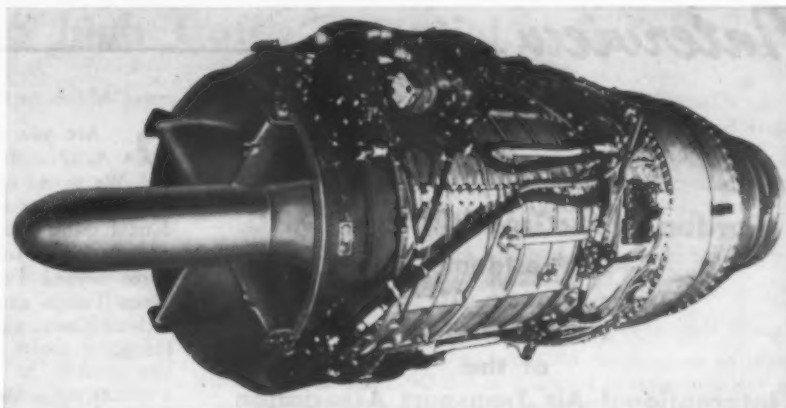
Wright had another major project in its plants which should have been cleared out to permit concentration on the Sapphire—production of parts of the General Electric J-47 jet engine under subcontract.

#### Not Phased Out

Wright built all major components of the J-47 except the "tinware" and at times was turning out as much as one-third of all J-47 production. Military demands for J-47 production, however, precluded Wright's "phasing out" of that program and the company was forced to keep a large part of its staff on the J-47 project when they should have been diverted to the Sapphire program. Wright has not yet completely been phased out of the J-47 project but will be soon.

Still other production workers were required on another project, the modernization of R-3350 cylinders for Boeing B-50s. Wright has modified more than 1,000 of these cylinders, a \$25,000,000 program, since 1949.

In spite of these other assignments, which required a wide diversification of the company's talent, Wright completed



VIEW of 7,200-pound thrust J-65.

a 150-hour endurance test of a rebuilt British Sapphire with American-built cast steel center main bearing support, main bearings, oil tank, fuel system and accessories by August, 1951.

The first actual production engine was delivered to the USAF on April 19, 1952, 16 months and four days after receipt of the initial contract. This time actually bettered by two months the period required to convert a previous British-designed model into a production engine—and the other engine was a lower output power plant, simpler to build, and it went through its growing pains without the attendant complexities of the post-Korea expansion.

On June 4, 1952, Republic Aviation Corp. received the first engine for the F-84F.

In September, Buick developed its first "pilot" engine, 19 months and 10 days after receipt of its contract.

Sapphire production is now on a steady rise and when the airplanes which are to be powered by the J-65 are ready for power plant installation, there will be engines for them. In addition to the F-84F, the Sapphire will go into the Martin B-57, USAF version of the British English Electric Canberra, and a new Navy airplane which has not yet been announced.

As its production grows, its power will probably grow. Gilpatric hinted that the Air Force has plans for a thrust increase in the J-65 when he said recently that it has a "considerable growth potential." Now a 7,200-pound thrust engine, it will probably be developed at least up to the 8,400-pound rating which the British have achieved in test stand operation.

There has been some criticism in Congress and in civilian agencies not too well acquainted with the problem that military production in general is lagging. Perhaps it does lag behind the

original "over-sanguine" schedules, but only because of the many problems attendant upon a too-rapid expansion after Korea.

The Sapphire is cited here as an example of what those problems were; they were not confined to Wright, but were general in the industry. The air is now clearing, and production throughout the industry should be on the upswing from here on out.

## Proposed CARs Based On Airworthiness Review

New Civil Air Regulations resulting from the 1952 annual review of airworthiness regulations have been proposed by the Civil Aeronautics Board in a 75-page draft release (No. 52-27) requiring industry comment not later than November 24, 1952.

Highlighting the Board's proposals was a move to extend the present temperature corrections to the take-off flight path beyond the end of the runway and the elimination of the 80% humidity factor heretofore used in aircraft certification, proposing humidity accountability as an operational rather than a certification requirement.

Other measures proposed in the draft release require power indicating devices (BMEP indicators) for engines of 2,000 cu. in. displacement or more and increased flashing frequencies for position light systems. Positive action was also taken by the Board on propeller reverse pitch indicating systems and cockpit ventilating air control.

In discussing revision of CAR Part 3, the Board maintained that 12,500 pounds should be the limit for certification and termed the Aircraft Industries Association suggested 2,500 pound allowable growth factor "confusing and in fact impractical."



# Interview

with

**Gordon R. McGregor, O.B.E., D.F.C.**

**President**

**Trans-Canada Air Lines**

**President-elect  
of the**

**International Air Transport Association  
for 1953-1954**

## TCA: New Routes, New Equipment

**Gordon R. McGregor**, president of Trans-Canada Air Lines since 1948, backs a well founded knowledge of aviation with wide engineering and commercial experience. From 1923 to the outbreak of World War II in 1939, he was with the Bell Telephone Company of Canada where he received rapid promotion; his final appointment with the company was that of district manager in Montreal.

McGregor started flying in 1932 and on three occasions won the Webster Trophy, awarded to stimulate improvement in the quality of amateur flying. A year prior to the war he joined an auxiliary squadron of the Royal Canadian Air Force and in 1940 he went overseas with the RCAF. He distinguished himself in the Battle of Britain and was one of the first three members of the RCAF to be decorated. He ran up an impressive score of victories and won quick promotion.

Among his key wartime appointments were those of Director of Air Staff RCAF Headquarters Overseas; Commanding Officer of the Canadian Wing in Alaska; and Commanding Officer of a fighter wing in the invasion of Western Europe. Group Captain McGregor's wartime service earned him the Distinguished Flying Cross, the Order of the British Empire, two mentions in dispatches, the Netherlands Order of Orange Nassau, the Croix de Guerre, and the Czechoslovakian War Cross.

McGregor, 51, joined TCA in 1945 and was made general traffic manager for the system in January, 1946. Since that time he has won worldwide acclaim for his contributions to the study of traffic problems confronting the air transportation industry within the framework of the International Air Transport Association, and his election to the office of president of IATA for 1953-54 is evidence of the high regard in which he and TCA are held throughout the world.

**Q.** Are you satisfied with the U. S.-Canada bilateral? **A.** No—I don't suppose any operator is ever satisfied. We would naturally like to have other routes and other rights involving the United States, particularly Fifth Freedom. I think I can use the adjective "valueless" to describe our sole Fifth Freedom right in the U. S.—the right to carry traffic beyond Tampa; there is exceedingly little traffic between Tampa and the various points we serve South of it, such as Nassau and Kingston. We would naturally like more Fiftths.

**Q.** Are there any specific Fifth Freedoms you have in mind?

**A.** One we are very much interested in, and have repeatedly suggested as deserving of attention at a revision of the bilateral, would be Boston-Bermuda. We fly right over Boston on our service to Bermuda, which at the height of the season is daily. Pan American once provided service between Boston and Bermuda but dropped it. The Canadian National Steamship service between the two points is being abandoned. We therefore feel that it is to the interests of Boston, the United States, TCA, and Bermuda for a direct service to operate between these two points.

We are not asking for, and have not asked for the associated Third and Fourth Freedoms, which would be Montreal-Boston and would be a direct encroachment on Northeast. All we asked for was a Fifth, disassociated from a Third and Fourth and so far the CAB has said "No, no, nobody has ever heard of a Fifth without a Third and Fourth." Their argument doesn't make sense but that is the argument.

There would also be good traffic for us from Montreal and Ottawa to Washington, but that would encroach on Colonial.

**Q.** Have you any further comments on freedoms of the air?

**A.** I would like to recall that there was at one time a very firmly enunciated principle—although it was only a principle and not a law—that the carrier of one country with Third and Fourth Freedom privileges would not be allowed to stop at more than one point in the other country, and that principle was honored up until about three or four years ago, in the last bilateral revision.

At that time the U.S. asked for two exceptions to that principle; one was that Colonial be allowed to stop at Montreal and Ottawa on the same flight, but without cabotage privileges, and the other was that Western be allowed to stop at Lethbridge and Edmonton. Both these exceptions to that principle were granted, but no reciprocal privileges were granted Canadian operations into the U.S.A. It now seems that yet a third exception—or an exception to an exception—is desired, and that is that Western be allowed to stop at Calgary in addition to Edmonton and either in lieu of or in addition to its existing second stop at Lethbridge.

We feel that the principle is staggering pretty badly, and if we are to negotiate on that basis, these exceptions should be reciprocal; if we are not, let us hold the line with the two exceptions, because if there are any more exceptions the principle will have gone by the board.

Another thing we are unhappy about is that we have no trans-border route between Chicago and Seattle; the whole of the Prairies are devoid of any Canadian-granted trans-border route.



## "Ruhr . . . a high traffic potential area."

**Q.** Have you any specific plans for trans-border routes in the midwest?

**A.** We are interested in two things—one would be Winnipeg-Chicago or Winnipeg-Minneapolis-Chicago, and the other would be a foothills city such as Lethbridge to possibly some such place as Denver. Furthermore the oil development in Alberta, which is extending east into Saskatchewan, has produced a tremendous community of interest between that oil territory and, for instance, Texas, because nearly all the drilling has been done by American firms, on either American or Canadian capital; the whole thing has developed into a tremendous community of interest, and that border is without a Canadian air crossing for nearly a thousand miles.

**Q.** What progress have you made since you broke Colonial's monopoly on the New York-Montreal route?

**A.** I suppose we are cutting into Colonial's growth, but the total traffic is growing very steadily and strongly on that run. We began with three flights a day, one very lightly loaded; we are now operating four flights, heavily loaded, but Colonial's loads, so far as I know, have also shown an increase.

### Colonial Merger

**Q.** How would you be affected if Colonial merged with Eastern or National?

**A.** The New York route might become more competitive if the American carrier used pressurized equipment; at the moment we fly pressurized North Stars but Colonial does not use pressurized aircraft. I think there would be some attempt to get in on our traffic to Florida, but Customs and Immigration handling at New York will be a handicap to such encroachment. We get a good deal of Florida business due to the fact that our service is direct, avoiding the difficulties and delays currently experienced in clearing into the country at New York.

**Q.** Have you any plans for expanding your international system?

**A.** We would like very much to operate to Mexico which, strange as it may seem, ranks third in order of importance on the list of countries with which Canada trades. At the moment we have no bilateral with Mexico but one is under consideration.

**Q.** How about South America?

**A.** At present it is difficult to foresee sufficient traffic to warrant extending our Southern services beyond Trinidad. Brazil has a fair community of interest with Canada, but I think the only thing that would make an extension possible would be the sustaining traffic to be derived from a Fifth Freedom in the United States.

**Q.** Why did you choose Dusseldorf as the terminal for your recent transatlantic route extension to Germany?

**A.** We considered the Ruhr as being a high traffic potential area, and after that we were influenced, to some degree, by the superfluity of transatlantic services to other points, and the more we have seen of it, the more pleased we are with our choice. We do not have permission to carry local traffic between London and Dusseldorf.

**Q.** Do you plan to retain your call at Prestwick when you have aircraft capable of flying non-stop to and from London?

**A.** Yes—don't forget that a great many Canadians have a Scottish background, between 35 and 40% of our eastbound passengers get off at Prestwick instead of London. I believe that at Prestwick we board more westbound passengers than any other transatlantic carrier.

**Q.** Have you any thoughts on over-the-pole flying?

**A.** Yes—there is no particular magic about so-called over-the-pole flying. Routes of this kind become attractive as a result of the application of the well-known principle of Great Circle navigation, that is, the shortest distance between any two points on the earth's surface. The most direct route between any two cities in the northern hemisphere which have a difference in longitude approximating 180° will automatically pass through the polar region. Obviously there are not many pairs of cities meeting this requirement and between which there exists a high traffic potential. Examples might be London-Tokyo, and perhaps Stockholm-San Francisco.

Obviously centres of development in Canada lie very far south of such routes, and therefore it seems likely that TCA's interest in over-the-pole flying, while the Iron Curtain remains in place, will be limited to such possibilities as Vancouver to London or other northwest European centres.

### Sleeper Operations

**Q.** Have you any plans for non-stop or sleeper operations on your transcontinental route?

**A.** No. At the present time we find it very hard to justify not stopping even one of our five transcontinentals at points of fairly short intervals. We have tried from time to time non-stopping Winnipeg to Vancouver but find that the passenger who is in a hurry to get to Vancouver says, when he hears the departure time of the non-stop "have you nothing that will get me to Vancouver sooner?" and he takes one of the flights which stops en route but provides an earlier arrival time than the non-stop. Furthermore, as new aircraft become available they will be very substantially faster than the types now in general airline use, and naturally as the speed increases, the need for sleeper accommodation decreases.

**Q.** Do you anticipate any snags in the compound engines of your Super Constellations?

**A.** We will probably have to contend with some of the minor difficulties which usually occur when an airline first puts into service new equipment, but we are hopeful, and have, I think, every right to expect that, due to the large number of engines that will be in service before we get them, the snags will have been eliminated. I doubt if we will overhaul the engines in view of the small number involved, probably not more than 40 to 45 for the eight Super Connies.

**Q.** Do you still regard the turboprop as a major factor in your re-equipment program?

**A.** Yes. While the speed of full-jet aircraft has a strong appeal over such routes as those where BOAC is now

## "Forecast . . . system gross revenue over \$50 Million"

operating them, they still have severe economic and operational limitations. We are of the opinion that, at least at this stage of turbine power development, commercial aircraft powered with turbo-propeller engines have certain advantages over aircraft using turbojet engines, over a wide range of routes. On the short and medium length operations, the economics of turbo-propeller power are definitely better.

Turbo-propeller engines do not have to be operated at the extreme altitudes which fuel economy makes necessary with respect to the turbojet. Turbo-propeller driven aircraft will generally be substantially slower than full jet counterparts, but will still be considerably faster than piston-engine aircraft of comparable size.

Apart from the short and medium range turbo-propeller driven aircraft, of which the Vickers Viscount is a good example, the Bristol Britannia, a prototype of which flew at this year's S.B.A.C. show at Farnborough, shows promise of being an efficient long-range airplane.

### Passenger Comfort

It is my opinion that the degree of passenger comfort which can be attained in the cabin of a turbo-propeller driven aircraft will make such aircraft extremely popular with the air-travelling public in the years to come. Turbo-propeller engines share with turbojet engines a virtual freedom from vibration, but in addition all points in the cabin of turbo-propeller powered aircraft have an extremely low level of noise.

It must be admitted, however, that problems arise when consideration is given to introducing into North American service aircraft of British design. Temperature conditions are so radically different that considerable modification would be necessary to such things as cabin heating systems, for example.

**Q. Wouldn't the project for Canadair to build the Britannia help in "Americanizing" the aircraft?**

A. Yes. If it is decided that Canadair build a military version of the Britannia the question of "Americanization" would of course be answered. On the other hand, there would be substantial differences between the aircraft which the RCAF might require and the version of the Britannia which would be suitable for civil use.

This difference would, however, not be so great as to destroy the many advantages which stem from the simultaneous use by both the RCAF and Canadian airlines of a common basic type. I think it is true to say that both the RCAF and TCA have felt these advantages in the case of the North Star.

**Q. How closely do TCA and the RCAF work together in defense transport planning?**

A. I would say very closely. Both the RCAF and TCA recognize the advantages to which I have referred, particularly that of reduced first cost. The basic problems of military and civil transport are not greatly different and there

is a basic understanding between the RCAF and TCA that as far as security requirements permit, there will be an exchange of ideas and experience and, that at least where Canadian manufacture is involved, efforts will be made to correlate our individual requirements.

**Q. Are you interested in a "DC-3 replacement" such as the Canadair CL-21 for feeder services?**

A. The DC-3 will probably remain a most satisfactory aircraft on certain of TCA's routes for some years to come. On many other routes, however, the traffic is rapidly outgrowing the seating capacity of that excellent aircraft and in these cases TCA is planning for a successor.

I am inclined to the opinion that the Canadair CL-21 as presently planned is not sufficiently greater than the DC-3 in seating capacity to meet our requirements. Our studies on this subject indicate that our passenger seat requirement for an aircraft to succeed the DC-3 is not less than 40 and that even 48 seats would not be excessive.

**Q. What are your views on helicopter operations?**

A. I feel certain that the next few years will see a rapid development in rotary wing type aircraft, in fact I think the influence of their quite extensive use in Korea is already being felt in the industry. Thus far, even the larger helicopters are quite limited in seating capacity, which of course places them at something of an economic disadvantage.

### Attractive Field

Nevertheless where there are comparatively long distances between centers of population and the serving airport such as, for example, Hamilton and Malton, there appears to be an attractive field for helicopter operation in the not too distant future. The problem of de-icing a rotary wing is something which must be given close attention by Canadian operators.

**Q. How is the financial picture looking this year?**

A. The gross revenue of the company this year will again show a substantial increase over the preceding year; we are in fact, forecasting a system gross revenue in excess of \$50,000,000.

In common with all other operators, we are experiencing substantial increases in the cost of operation, with the result that it is certain that the net operating profit in 1952 will be very much less than in 1951. Furthermore, for the first time in its history TCA will this year be assessed corporate income taxes, which will probably reach an aggregate amount approximating \$1,000,000.

With substantially reduced revenue from Atlantic operations, due to the major fare reduction which took place on May 1 last, with a reduced net income from North American operations, and a very large bill for taxes, the final result will obviously not be impressive, but I feel confident the system figures will still be black.

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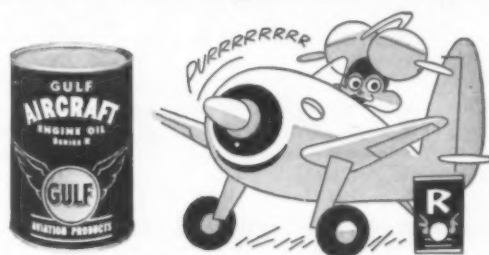
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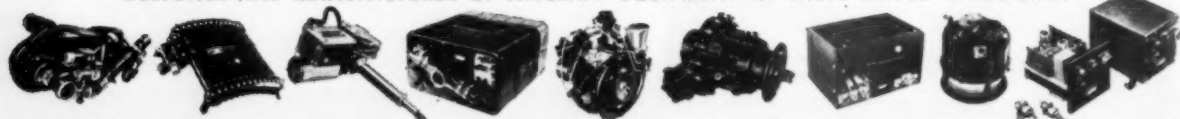
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POWER PLANT installation in the Lockheed R7V-1 Super Constellation is the Wright Aeronautical R-3350 Turbo Cyclone.

## Turbo-Compound Super Connie Flies

Competition for jet transports seen in efficiency of new engine; commercial use begins in '53.

By FRED S. HUNTER

**A** NOTEWORTHY first flight took place last week at Lockheed Air Terminal, Burbank, Calif.

The airplane was the Navy's R7V-1 Super Constellation.

The event had more than usual significance because the R7V-1 is the forerunner of compound engine use in two of this country's most promising commercial transport aircraft, the Lockheed Super Constellation and Douglas DC-7.

Lockheed calls the turbo-compound engine the most efficient piston power plant ever developed. Besides lower operating costs, Lockheed describes it as "providing a speed and long-range performance combination unbeatable even by today's jets."

Increases of 50 mph in speed and 20% in fuel economy result from the use of the three-stage turbine transferring otherwise wasted exhaust gas into extra shaft horsepower in the four Wright R-3350 Turbo Cyclones in the Super Constellation, Lockheed reports.

This translates into an all-out maximum approaching 400 mph, or at about 340 mph over long ranges, Lockheed states. Super Constellations will fly across the Atlantic in less than nine hours with a full 59-passenger luxury load, the manufacturer adds.

"Wedding of the compound engine and the Super Constellation will keep Constellation operators competitive on all the world's major air routes until arrival of economical jets in a few more years," said Hall L. Hibbard, vice president-engineering for Lockheed.

The military counterpart of Lockheed's cargo Model 1049B Super Constellation, the Navy R7V-1 is a combination transport that can carry 106 passengers (in aft-facing, 20-g, removable seats,) up to 19 tons of cargo, or 73 battle casualties on stretchers. Gross weight is 130,000 pounds.

The airplane has the magnesium floor developed by Lockheed for cargo-type planes and it is equipped with an auxiliary power unit, AiResearch Manufacturing Co.'s GPT-70 gas turbine,

which will enable it to make use of the Lockheed-developed Aerolift loading platform in the field where there is no local power supply. It also can supply power for the radar installed in the military Super Constellation.

The R7V-1 engines, carrying the Navy designation of dash 34W, are identical with the 3,250 hp DA-1 engines that will go into the luxury commercial Super Constellations Lockheed begins turning out early in 1953, starting with the first Model 1049C for KLM. Twelve airlines have 69 on order.

A distinction between the turbo-compounds for the new R7V-1's and those the Navy has been using for the last two years in the P2V patrol bombers, in which Lockheed pioneered the installation of turbo-compound engines, is the incorporation of fuel injection. The dash 30W's powering the P2V series are spinner injection engines.

Navy practice is to use manifold pressure and rpm's for power settings, but for the initial phases of operations, 1,000 hours or so, the Fleet Logistics Wing, which will operate the Navy R7V-1's, plans to employ BMEP and fuel flow, the method that has come into airline favor since the development of the torque meter.

### Cooperative Program

This will be done in a long-range cruise control program which will be worked out in cooperation with Lockheed and Wright for the purpose of obtaining operational data not only for the Navy but for the airplane and the engine manufacturers as well. Moreover, the information which will be derived from this extensive service testing of the engine will undoubtedly have substantial value for the airlines.

Roy E. Wimmer, a veteran of Constellation flight testing for Lockheed, was at the controls of the R7V-1 on its initial flight. C. P. Nicholson was the co-pilot and other crew and engineering personnel aboard were: R. E. Stanton, flight engineer; John D. Stockdale, flight test engineer; Joseph C. Csongradi, instrumentation engineer; Jack Harmon, data analyst; Glen Fisher, flight-engineer-observer; R. S. Renick, crew chief; Joseph F. Ware, supervisor, Constellation flight test group.

The factory flight test program on the R7V-1 runs into 1953. A second R7V-1 meanwhile has passed the midway point in static tests and, according to Hibbard, has passed all requirements with no permanent deformation resulting from the maximum flight-stress loads imposed by the specially built \$60,000 steel "torture rack" in which the airplane is wedged and where powerful hydraulic jacks simulate multiple overloads on wings, fuselage, tail, landing gear, and control systems.

# Seniority and Safety Make News at ALPA

**National pilot roster fight ducked at biennial meeting; secret action taken in Behncke tussle.**

By ROBERT M. LOEBELSON

**C**HICAGO—Delegates to the Air Line Pilots Association biennial convention here had an opportunity in the form of two separate resolutions to solve the seniority problems involved when two airlines merge, but they backed away from the subject because of the rows it touched off.

Had they enacted either or both of the agenda items, there would have been no recurrence of the seniority question raised in 1950 when Pan American World Airways merged with American Overseas Airlines—a dispute which is still in progress despite a ruling by an arbitration panel.

The 220 (out of a possible 225) delegates representing 115 ALPA councils had to decide on recommendations which would:

- **Make a pilot's length of service** as a pilot with his respective airline govern entirely his new position on an integrated list.

- **Create a National Seniority List** of all ALPA members to be used in integrating lists, with pilots' positions on the roster determined solely by overall airline service.

## Resolutions Ignored

After lengthy debate, with representatives of smaller airlines opposing the over-all service idea because most of them were hired later than pilots on larger lines, the delegates ignored the resolutions, deciding only to continue the present seniority integration procedure with special consideration ordered for length of airline service.

In view of ALPA's usual interest in air safety as a protection for its membership, it was inevitable that the delegates take action on this front. They did this by:

- **Setting up an annual air safety** forum to establish the union's policy on such matters.

- **Again promoting the creation** of an Independent Air Safety Board completely divorced from CAA and CAB.

- **Voting not to change** current policies to permit lower landing and take-off minimums for cargo operations to test the feasibility of lowering minimums when improved low approach navigational facilities become available.

- **Calling for the establishment** of standard left-hand traffic patterns con-

tained within a defined control zone at all airports, urging all pilots to comply unless otherwise cleared by an air traffic controller.

- **Asking that present visibility** and cloud clearance requirements remain pretty much unchanged but resolving that an attempt be made to amend the Civil Air Regulations so that VFR flights in weather less than 1,000 feet and three miles would be prevented.

- **Creating a committee** to work toward the establishment of maximum and minimum performance limits for transport planes of the future.

## Air Safety

The Air Safety Forum, a two-day session each March, will be comprised of one air safety representative from each airline plus any special representatives from pilot or industry ranks deemed necessary. It will enable ALPA not only to discuss subjects previously talked over at the Annual CAA Airworthiness Review but will also permit union spokesmen to exchange their viewpoints with airline representatives.

The Independent Air Safety Board called for by ALPA delegates would have to come into being in the form of a bill passed by both houses of Congress. ALPA's proposed bill, which would have required that one member have at least 6,000 hours of flying time in scheduled air transportation and be an active airline pilot at the time of his nomination, has been modified to make the President's choice easier.

A second member would have to be a private pilot and the remaining three would have "qualifications [which] will insure efficient performance of the investigatory functions of the Board." The basic reason for ALPA's request is that no investigatory body should sit in judgment of its own cause. This, ALPA believes, is definitely possible with CAB's Bureau of Air Safety.

The proposal to choose a committee to help determine performance limits on transports brought vehement pleas from the floor of the convention. D. J. ("Snuffy") Smith of Trans World Airlines, C. H. Ruby of National, and A. F. ("Red") Foster of TWA, for example, all rose to point out that pilots who risk their lives flying modern transports have never had an opportunity to say before a plane is delivered that "if the plane doesn't meet certain specifications, we won't fly it."

Another subject which caused considerable debate was an agenda item to liberalize ALPA's radar traffic control policy in view of technical advances made during the last two years. Proponents pointed out that:

- **Newly designed radar equipment** has been installed at many points and is giving good service.

- **Ground clutter** has been eliminated in some types of radar equipment.

- **Radar operators** are now better trained than they were a few years ago.

- **Surveillance approaches** are being made successfully at range minimums without cross checks.

- **Improved scheduling** could result if GCA could be considered an equivalent replacement for an inoperative landing aid.

In fighting adoption of the resolution, opponents emphasized that:

- **Radar still has known deficiencies.**

- **Wrong identification** of target aircraft under present radar operating conditions is still possible.

- **Standard rates** of speed, climb, and descent in control areas could result in uneconomical and possibly dangerous jet aircraft operating conditions.

## Radar Policy

After referring one proposal along these lines back to committee, delegates ultimately approved a resolution which reaffirms ALPA's policy on radar for traffic control. This proposal said, however, that "when dual systems [GCA plus ILS] are not available, ALPA recognizes either ILS or GCA as a primary aid (with ILS preferred), subject to the provision that (1) adequate supplemental aids in the form of markers and radio aids are available and operating, and (2) precision GCA approaches be authorized only where at least an outer marker or a compass locator type aid at either the outer or middle marker site be available and operating, as cross check aids."

The controversial question of knots versus miles per hour also came in for lengthy discussions during the six-day convention, but a suggestion that a change be made in ALPA's favoring knots and nautical miles as standards of measurement was ignored. By an overwhelming vote, spokesmen for the 115-pilot councils decided to continue pressing for standardization because it is a desirable safety factor.

Pilot representatives took a proposal to pull out of the American Federation of Labor in stride, deciding they had not taken full advantage of AFL's





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services in the past and resolving to do so in the future.

The item was placed on the agenda because of a feeling among some pilots that the AFL, by keeping out of the recent controversy between Clarence N. Sayen, the current president, and David L. Behncke, former head deposed by the Board of Directors last year, had tacitly backed Behncke.

ALPA delegates also took the following actions:

- **Adoption** of a new set of by-laws to make the union more democratic.
- **Creation** of an annual gold medal to be awarded to members for "heroic deeds in line of duty."
- **Ordering** creation of a committee to study the evolution of better retirement and insurance programs for the 7,771 active members.
- **Re-electing** current officers (Sayen as president; Jerome E. Wood as first vice president; F. A. Spencer as secretary; and Lyle Hincks as treasurer), at the same time boosting Sayen's salary from \$15,000 to \$19,000 a year.

#### Closed Session

The Behncke situation was discussed in a closed session for a full day, but decisions made during the closed meeting have not yet been announced. Agenda items dealing with ALPA's former president included plans to strip him of his \$15,000 annual pension and to take away his lifetime membership card.

Despite the avowed anti-Behncke sentiment, it was pointed out that ALPA might jeopardize any future legal actions by eliminating his pension. A U. S. Appeals Court has ruled that the Board of Directors acted legally in deposing Behncke but pointed out that one reason he had no legal claim was that he had suffered no financial loss as a result of the removal.

## PAL Asks Mexico City Extension

Philippine Air Lines has applied to the U. S. CAB for permission to extend its Manila-San Francisco route to Mexico City. Under the proposal, PAL would then have a through route between Manila, Guam, Wake, Honolulu, San Francisco and the Mexican capital.

The carrier told CAB it was designated to operate the route by the Philippines' CAB by order of September 30, 1952, in line with the bilateral air transport agreement between that country and the U. S. The line asked CAB to amend its foreign air carrier permit to authorize the new service.

# Health Clearance Called N. Y. Bottleneck

## Public Health Service accused of dragging its feet as impatient passengers pile up at N. Y. International.

By ERIC BRAMLEY

**U.** S. CITIZENS who have complained about red tape and bureaucratic methods surrounding international air travel in other countries have found one of the worst examples right on their own doorstep in the way Public Health Service is handling citizens at New York International Airport.

Instead of clearing citizens through health formalities first, PHS is mixing them with aliens, by going straight down the airline manifest and calling everyone in order of listing. The citizen is losing unnecessary time. Sometimes he may wait better than half an hour before starting through immigration and customs.

It's a situation that isn't getting any better, and it's laid to a lack of co-operation by PHS at the airport, principally on the part of Charles Vion, who is in charge. Vion is described as "bureaucratic," "domineering," a man "who antagonizes everyone."

No one claims that immigration and customs are perfect. Customs in particular is hampered by lack of space at peak periods, but it has been open to suggestions for improvement. PHS, airline officials say, claims it will cooperate, but when the chips are down, it doesn't.

Annex Nine of the Chicago Convention was put into effect several months ago. It eliminated the need for airlines to list on their manifests such items as citizenship, passport numbers, etc. It resulted in a "clean" manifest, a big step forward.

PHS concurred in the annex, but its New York officials claimed they'd have to have some indication of citizenship if they were to clear citizens first. Airlines, principally TWA and Pan American, who have been leading the fight to cut the red tape at New York, suggested that PHS make an announcement for citizens to clear first.

PHS conducted two tests and insisted that they resulted in confusion, with all citizens crowding forward to clear first. Other sources claim, however, that PHS inspectors were told "not to make this thing look too good."

Within the past two weeks, airlines suggested that PHS try on-board clearance of citizens—check their health cards aboard the plane and send them directly to immigration. In these tests, PHS insisted that after the on-board check the citizens pass through the PHS hold rooms to be checked off the mani-

fest. This is reported to have increased, rather than decreased, clearance time.

And this is what it boils down to—an airline claim that their suggestions have been prejudged with a it-won't-work attitude, rather than being received in an open-minded manner. The blame is placed on Vion, not on the inspectors, (some of whom have been reported to be calling citizens first).

Some citizens who have been burned up by the long wait have been told by PHS that it's due to a procedure insisted upon by the airlines. Some airlines have received complaints from citizens; others haven't. Lack of more complaints is attributed to the fact that "citizens have come to expect this sort of thing."

The PHS method can sometimes bog down immigration. PHS has no rule that citizens must clear first; immigration requires that they do. But this isn't always possible if citizens are mixed with aliens as they arrive in immigration from PHS.

Result of the PHS attitude is that different airlines are using different procedures. TWA, PAA, and BOAC have stood fast with the "clean" manifest. Some foreign airlines are marking citizenship on the manifest, others are giving PHS the embarkation-disembarkation cards. These cards, issued only to citizens, are usually carried through to immigration by the passengers. If PHS is to have them, they must be collected on the plane.

The Port of New York Authority late last fall made some time studies at the airport. Total passenger-time through PHS, immigration and customs is "closely related to the rank of the passenger in leaving the Public Health Service hold room," it said.

It showed that passengers Nos. 1 to 5 leaving the hold rooms would take a total of 45 minutes to clear all formalities. This included 18 minutes of actual processing, plus a three-minute wait in PHS, two minutes in immigration, 19 in customs, and three minutes for departure from the terminal. The customs wait is caused by the fact that these passengers arrive there before their baggage. PNYA's study showed that the shortest time baggage was fully distributed to customs inspection counters was 22 minutes, average was 33, maximum 67.

Passengers 21 to 25 waited 14 minutes in PHS against 16 in customs. From the 25th passenger, PHS waiting time mounted. Passengers 56 to 60



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waited 44 minutes in PHS, against 7 in immigration, and 11 in customs. Thus, of total clearance time of 93 minutes, these passengers spent almost half of it waiting in PHS.

In addition to PHS waiting time, there's an average of better than eight minutes before quarantine is broken—getting passengers from the plane into the hold room, then having the pilot enter and inform PHS that the state of health on the plane is good. Quarantine is then broken and PHS starts processing.

PHS claims it can't clear citizens first without a note on the manifest as to citizenship, or else it must have the E/D cards. It further claims that when an immigrant is called, he is asked to return to his seat and wait until other passengers have cleared.

Quarantine time doesn't delay baggage unloading, PHS says. Baggage can be unloaded as soon as the plane's compartments are sprayed, but must be kept in the vicinity of the plane until quarantine is broken. Unloading crews, it adds, probably wouldn't be ready to handle bags within the eight minutes quarantine time (baggage is handled for the airlines, under contract, by Allied Maintenance and by Flight Dispatch. Only Air France handles its own.)

PHS handling at other airports isn't bad. Some examples:

- **Honolulu**—Quarantine is broken aboard the plane, passengers are led to hold room and called after diplomats.

- **Los Angeles** (Central American arrivals)—Citizens after diplomats.

- **San Juan**—On-board inspection for terminating flights, with passengers proceeding to immigration. On flights en route to the mainland, PHS examination is without regard to nationality.

There's a non-standard practice at Miami. Citizens clear first because airlines have "agreed" to list them first on the manifest, separating them by two lines from aliens listed thereafter. If followed by every country, this would mean that carriers would have to prepare separate manifests for each nationality.

Airlines don't want to take a step backward—they don't want to furnish information again that was eliminated by Annex Nine. But it may come to this if no other solution is found—and none is evident. One airline official pointed out that furnishing PHS with the E/D cards might be only a temporary solution because there's a possibility that these cards may be eliminated entirely.

Only other possibility is a notation of citizenship on the manifest, and this could lead to other agencies and countries demanding more information.



CONFERRING during the session are (left to right) Col. Frank Collins, Dept. of Defense; Maj. Gen. Roger Ramey, USAF's director of operations; CAA's Robert Cook and A. B. Curry, director of Dade County, Fla., Port Authority.

## Airports: No Love Feast, But Progress

Airports and military find grounds for agreement in Miami meeting, but some sore points remain.

By KEITH SAUNDERS

**T**HE "BIG TRY" of the airlines and the Airport Use Panel to resolve the conflicts and the uncertainties stemming from joint civil-military use of certain airline terminals did not quite live up to the advance billing.

The two-day meeting, held in Miami on October 22 and 23 with representatives from 14 airlines in attendance, had the following principal results:

- **The military made the first disclosure** to the airlines of the extent of its plans for operations and construction at the approximately 34 key airports on the agenda.

- **The military assured the airlines** that they would not be prohibited from making use, within reason, of certain military bases for alternates.

- **The Air Force stated its willingness** to waive landing fees for airline use of certain airfields where commercial air service fills certain defense needs.

- **The Air Force assured the airlines** that it is "for 'em, not agin' 'em," and made it sound convincing.

### Recapture Clause

Still unresolved at the close of the sessions was the overriding question of to what extent the military should be allowed to exercise the so-called "recapture" clause of the Surplus Properties Act, to the hindrance and detriment of civil aviation, during a period of a declared emergency which is far short of an all-out wartime mobilization.

The use panel, which is an adjunct of the Air Coordinating Committee charged with promoting coordination

between civil and military users of airports on which Federal funds have been expended, arranged the meeting in an attempt to settle numerous complaints of the airlines at one time, instead of having to hold separate hearings on the joint-use problems at 34 individual airports.

Leading the airline team at the sessions was Milton W. Arnold, vice president-operations and engineering, Air Transport Association, who was flanked by E. G. Dinning of ATA's headquarters staff, C. F. Timmerman of the Chicago regional operations office, John Groves of the New York office, H. L. Roberts of the Fort Worth office, and E. M. Ellingson of the Los Angeles office.

### "Top Brass"

In addition, 14 airlines serving the 34 key airports sent to the conference some of their ablest negotiators, many of whom were "top brass."

There were such people there as Glenn Markt, assistant secretary of American Airlines; Frank Judd, vice president-operations, Northwest Airlines; John Morris, vice president, National Airlines; C. H. Dolson, v.p.-operations, Delta; Leslie P. Arnold, vice president, Eastern; Humphrey Toomey, manager of Pan American's Latin American Division; and F. E. Busch, general operations manager, TWA.

Present to hear the complaints of the airlines and state official views was a panel composed of: A. B. Curry, director of the Dade County (Fla.) Port Authority, representing the commercial airports; Maj. Gen. Roger Ramey, director of operations, USAF; Vice Adm.

Matthias Gardner, Vice Chief of Naval Operations-Air, for the Navy; Joseph P. Adams, member of the Civil Aeronautics Board; Charles F. Horne, Civil Aeronautics Administrator; Brig. Gen. G. J. Higgins, representing the Army, and Col. Frank Collins, Office of the Secretary of Defense, representing the reserve components of the armed services.

For Robert Cook, administrative assistant in CAA's Office of Airports and secretary of the use panel since its creation, the meeting constituted his last official act with the agency. He is now manager of the Washington office of Rader Engineering Co.

The first day's session went off smoothly, with close to two-thirds of the airports covered, one by one, and no real rhubarbs developing. At the close of the session, the panel held a press conference at which statements were made indicating that all had been sweetness and light and that the meeting was close to being a love feast.

After giving the airlines his quoted assurance that the Air Force is "for 'em, not agin' 'em," General Ramey summed up the USAF's position in these words:

"The Air Force neither contemplates nor proposes restrictions on scheduled civil air carriers as to use of or expansion of existing landing, taxiing, or approach facilities on any contested airport—except those restrictions imposed by construction requirements or peculiar operations activities."

#### Navy Concurs

Admiral Gardner concurred in this as being representative of the Navy's views, and Milton M. Turner, Deputy Assistant Secretary of the Air Force, said it "very factually expressed" Secretary Finletter's viewpoint. Airline spokesmen asserted that numerous misunderstandings had been cleared up, that the military had shown itself to be most cooperative, and that some of the airlines' problems apparently were on their way to solution.

Subsequently, however, some of the airline people re-read the Ramey statement and saw some grounds for apprehensions in the qualifying clause . . . "except those restrictions imposed by construction requirements or peculiar operations activities."

It was clear that these exceptions could cover a multitude of military encroachments and restrictions, and that this clause, if interpreted broadly, could be a real joker in the military's position.

On the second day the airlines went back into the meeting with some tough questions to fire at the military people, and when they began asking those

questions, some discordant notes entered into the previously harmonious discussions.

For example: what did the military intend to do about providing hangar space for the airlines at such places as Sioux City (Ia.) Municipal Airport, where Braniff Airways has to keep two or three planes at the field overnight, sometimes in icy and sub-zero weather, and the Strategic Air Command demands exclusive use of the only available hangar? Or at Wilmington, North Carolina, where Piedmont Airlines holds four planes overnight and the only available hangar is in an area which the Navy wishes to retain for its exclusive use?

#### Terminal Available

The military representatives generally took the position that, in accommodating the airlines at military fields, they should make every effort to leave available a terminal building for use of airline passengers, but that they felt no compulsion or obligation to provide hangar space. There seemed to be no easy solution for this one.

Then, at fields where the Air Force or the Navy is the "landlord" and not just a tenant, there was the question of what to do about landing fees.

The standard lease agreement worked out by the Department of Defense several years ago provides that the Air Force shall collect landing fees on a sliding-scale rate based on frequency of schedules. The Air Force said it was quite willing to forego such fees at fields where service by a scheduled airline or airlines is of tangible benefit to the defense effort and would make a recommendation to this effect to Defense.

The Navy, however, took the position that it could not afford thus to "subsidize" the airlines and would have to charge landing fees, basing same on operating and maintenance costs of certain facilities divided by gross weight times number of operations by military planes and by air carrier aircraft.

The airlines vehemently protested this, pointing out that they would have no control of their section costs under such an arrangement. For example, they said, an airline might never need more than 6,000 feet of runway, but the Navy could base its landing fees on the costs of repairing, resealing, lighting and draining the unneeded last 2,000 feet of an 8,000 foot strip.

Furthermore, if the Navy should decide to pull two of three squadrons out of a field, the percentage of airline use would go up sharply and the airline or airlines would be charged accordingly, even though their own operations had not increased at all.

Another vexing problem was seen in the matter of military construction at joint-use fields. Such construction is planned and performed by the Corps of Engineers, usually without any conferences with airline officials or CAA regional personnel, with the result that the airlines sometimes find a hangar has been isolated from the terminal area when the Engineer Corps close or plow up an access road in connection with some military construction project.

A glaring case cited by CAA and the airlines was that of the military hangar built just at the end of the instrument runway at Big Springs, Tex. The runway in question is to be abandoned next spring or summer upon completion of a new runway that is now being constructed, but the hangar was built at a time when the existing runway had to be used for a number of months before the new one is opened.

It was pointed out that such things have happened repeatedly, and the military members of the panel admitted that this situation needs to be corrected. They promised to ask the Engineers to discuss their plans with CAA and the airlines before construction is started so that civil aviation will not be unnecessarily inconvenienced or discommoded.

#### Dark Spots

All in all, the Miami meetings showed that some problems and worries of the airlines at joint use airports could be resolved without much difficulty, and at the same time they brought out the fact that there still are a number of dark spots in the picture.

At least, though, when the sessions were over the airlines knew more than they had ever known before as to the military's plans at 34 key airports (although, of course, these plans are subject to future change or expansion), and the military had a clearer knowledge than it had ever had of the airlines' wants, expectations and apprehensions at joint use airports.

Meanwhile, the airlines are hopeful that:

- The military will make every effort to resolve or eliminate the remaining sore spots.

- Legislation can be introduced in Congress early in the next session which will amend or modify the "recapture clause."

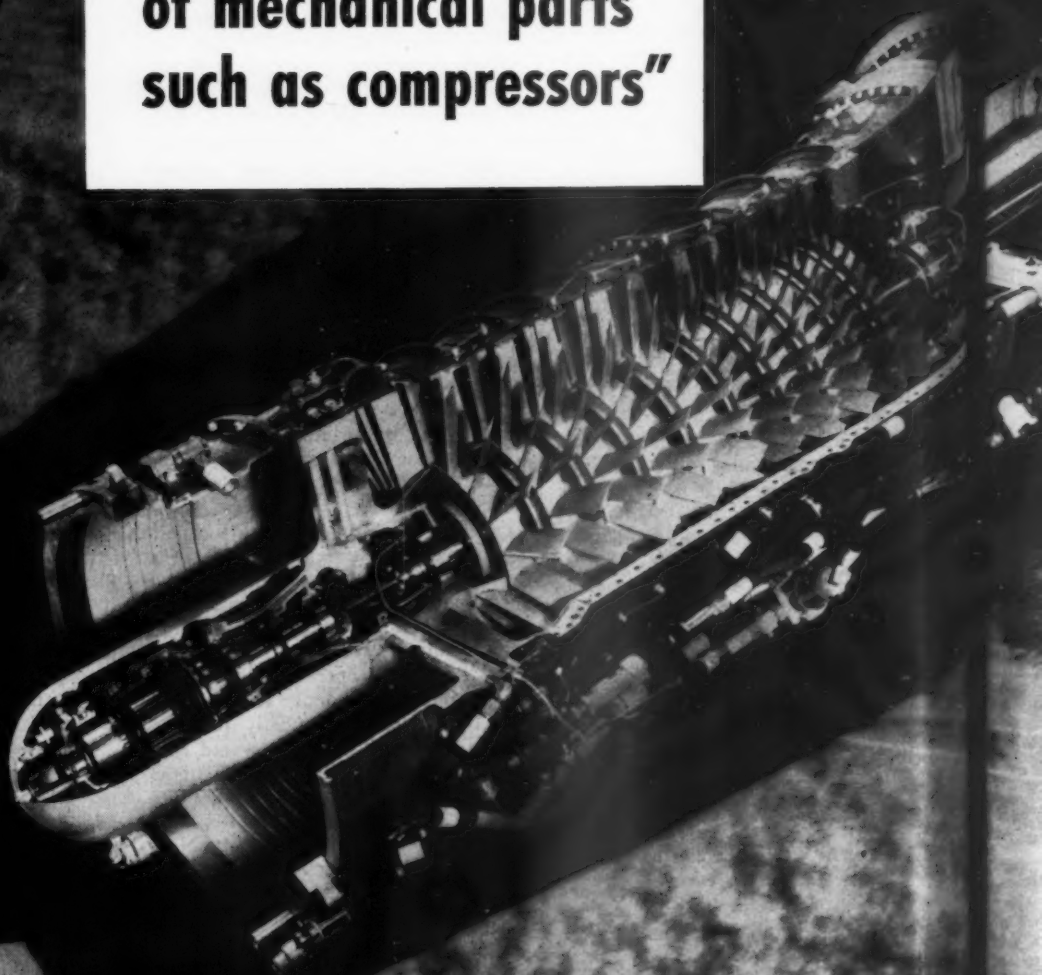
- Steps may be taken to have 15 to 30 terminal airports declared exempt under the clause.

The Air Transport Association and the individual airlines affected will continue to press for these measures.

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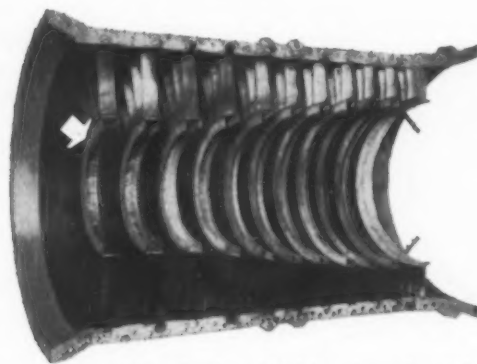
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Westinghouse is investing millions of dollars and man-hours to help build American jet-propulsion leadership. Jet engines are produced at South Philadelphia and Kansas City plants by Westinghouse, America's Jet Engine Pioneer.

J-91002



*Shown above is one half of the stationary element of a Westinghouse jet engine compressor. It consists of steel-fabricated diaphragms assembled in machined grooves in a cast aluminum housing. The white arrow above indicates one of the inner steel support shrouds.*

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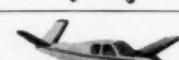





##### Airborne system components

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## What They Want—and What They Have

AIRCRAFT		Pass. Cap.	Range	Cruis. Speed	Pressuri- zation	Landing Gear	Propeller	Wing	Engine	Cost
	THE "IDEAL" *	6-12	1,000	255	Yes	Tricycle	Reversible pitch	Low	2 bet. 600 and 1200 hp.	Under \$200,000**
	de Havilland Dove	8 <sup>(a)</sup>	1,000	155	No	Tri.	Rev. pitch	Low	2 Gipsy Queen S.70 330 hp.	\$89,350**
	Douglas DC-3	up to 21	1,500	185	No	Conven- tional Retract.	Constant speed full- feathering	Mid	2 P&W 1050 hp.	\$85,000 used
	Lockheed Lodestar	8-9	1,400	200	No	Conv. Ret.	Const. speed full- feathering	Mid	2 P&W 750 hp.	\$70,000 used
	Lockheed Ventura	10	1,600	240	No	Tail wheel	Const. speed feathering	Mid	2 P&W 1,600 hp.	\$50,000 used
	Douglas A-26	4	2,000	266	No	Tri. Ret.	Const. speed full- feathering	Mid	2 P&W 1,600 hp.	\$140,000 used
	TWIN D-18 Beechcraft	5-7	750	165	No	Conv. Ret.	Const. speed	Low	2 P&W 450 hp.	\$74,050 up
	Aero Commander	5-7	850	180	No	Tri. Ret.	Const. speed	High	2 Lyco. 260 hp.	\$66,000
	Twin Piper	4	720	150	No	Tri. Ret.	Const. speed	Low	2 Lyco. 135 hp.	\$25,000
	Beech Twin Bonanza	6	900	180	No	Tri. Ret.	Const. speed	Low	2 Lyco. 260 hp.	Approx. \$60,000
	Ryan Navion	4	500	115	No	Tri. Ret.	Const. speed	Low	1 Cont. 185 hp.	\$15,000
	Beech Bonanza	4	500	170	No	Tri. Ret.	Variable speed	Low	1 Cont. 165 hp.	\$15,990
	Cessna 195	4-5	750	165	No	Conv.	Const. speed	High	1 Jacobs 300 hp.	\$15,995
	Piper Clipper	4	480	112	No	Conv.	Const. speed	High	1 Lyco. 115 hp.	\$6,000 used
	Stinson 150	4	500	120	No	Conv.	Fixed pitch	High	1 Frank. 165 hp.	\$5,000 used
	de Havilland Beaver	4	460	146	No	Inter- changeable skis-wheels- floats	Control- lable, pitch	High	1 P&W 450 hp.	\$53,000
	Cessna 170	4	480	120	No	Conv.	Fixed pitch	High	Cont. 145 hp.	\$7,245

\* This model was chosen by 60% of the CAA membership for their requirements. See story for other needs.

\*\* These prices exclude custom interiors, communication equipment. In the case of the Dove, the price would be about \$4,000 additional for radio, deicing equipment and long-range tanks.

(a) The Dove is easily converted to 11-passenger capacity.

**NOTE:** The specifications given above are as the planes leave the factory and do not take into account modifications made by individual owners. The prices, too, are averages and are based on the manufacturer's price at time of production or on used market values. The planes which are out of production have been purchased for the most part from used-plane sources. Prices fluctuate so in this category—depending on the plane's condition, equipment and rate of demand—that figures given are estimated averages.

# Corporate Aircraft: Profile for Tomorrow

Survey of "dream planes" shows varied requirements but a promising market for the right planes.

By LOIS C. PHILMUS

WITH THE RAPID and consistent growth in the use of corporation-owned aircraft for executive transportation, serious thought is being given to the design and production of the "ideal" corporation aircraft by both corporation pilots and aircraft manufacturers.

The manufacturing picture, at the moment, is as follows:

- North American Aviation definitely has more than a passing interest in such a design. Many say it is past the talking stage, and a plane is already on the design boards.

- Republic Aviation is rumored to be making a study of design potentials.

- Cessna has a new twin-engine plane in the works, with no production plans revealed.

An indication of the growth of corporation flying is best seen in the fact that in 1951 company planes flew 2,986,000 hours—730,000 more hours than the domestic airlines, according to Jean DuBuque, executive director of CAO.

In order to ascertain just what the requirements would be for such a design, the Corporation Aircraft Owners Association conducted a survey among its members. The accompanying chart was compiled from the majority results obtained from the survey and comparisons have been drawn among the equipment either being used or soon to be available. The planes selected for comparison are in greatest use, but none comes quite up to the desired design.

## Dove Closest

It is interesting to note that the aircraft that comes closest to the specifications—the de Havilland Dove—is of British design, not American.

The survey itself first establishes that corporation aircraft average 596 hours annual utilization, with the average flight lasting two hours and covering a 450-mile range. The maximum range is about 1,150 miles.

CAOA's chairman of the board, Cole Morrow, points out that "a preponderance of DC-3 operators reported 1,200 miles as their maximum range, which is just about the maximum range of their airplane. Therefore the figure of 1,150 miles is somewhat influenced by the kind of aircraft being operated."

There are three basic factors to be

considered in a design of an aircraft for executive transportation: safety, comfort, and economy—and, according to the survey, in just that order. Comfort takes precedence over economy, it was noted, because of the age of the executives traveling in company aircraft.

The members voted as follows on the size of the aircraft:

- 60% wanted the 6-12 passenger capacity (see chart) to cruise at 255 mph.

- 27% voted for a design that would carry more than 12, to cruise at 270 mph.

- 13% felt the need for a 4-6 passenger plane, to cruise at 250 mph.

Other features desired:

- Pressurization—80% in favor, 20% indifferent;

- Tricycle gear—99% in favor; 1% opposed;

- Reversible propeller—75%;

- High vs. low wing—75% favored low wing, 25% for high wing.

## Comfort Fittings

As for comfort fittings, those favoring the smaller plane, of course, found no need for either galley or lavatory. But those voting for the larger designs were 98% for lavatories and 55% for equipped galleys.

An analysis of the survey reveals that one design alone will not fill the bill, although the greatest need lies in the medium executive transport. The pilots agreed that it would take two and possible three designs to satisfy all users, i.e., small load, short haul; medium load, medium haul; and large load, long haul.

In line with the airframe manufacturers creating one or all of the suggested designs, it was pointed out that the engine makers must come through to fill the gap that exists between the 600 hp rating and the 1,200 hp, since no such engine exists at this time.

In talking to CAO members at the recent annual meeting in Chicago, we learned that passenger carrying capacity is not determined by the size of the aircraft but, in many cases, by company policy. Many of the companies limit the number and category of executives permitted to use the airplane facilities. Because of such policy, very often where 16 passengers could have been carried on one flight, eight are taken in two trips.

The market potential cannot be underestimated by the aircraft manufacturers. In his interview in *AMERICAN AVIATION* (June 23), Cole Morrow stated that there are 20,000 corporations in the U. S. who could afford and utilize an airplane with only 800 currently taking advantage.

Former CAB chairman Donald W. Nyrop gave an indication of the need for specific designs and production of corporate planes in a speech before the CAO meeting, when he pointed out the great diversity of equipment being flown with the following figures:

## In Service

Of the 1,700 multi-engine, corporation-owned aircraft, there are 265 Douglas DC-3's; 210 Lockheed Lodestars; 45 Grumman Mallard amphibians; four Convairs; two DC-4's; 625 Twin-Beech's; and 140 Grumman Widgeon amphibians.

In their quest for equipment, corporations rely heavily on military surplus sources and have converted 15 B-23's; 15 Lockheed Venturas; 25 B-25's; 25 A-26's; three B-17's; and four B-24's.

Among the 200 company members of CAO, the following number of single-engine aircraft are operated: 45 Bonanzas; 18 Navions; 12 Cessna 195's; six Cessna 140's; five Cessna 170's; three Piper Clippers; and six Stinson 150's.

In other words, any equipment the corporations can get their hands on is being pressed into service—and their need for new planes designed to their specifications is becoming greater.

## CAB Defines Scope

Civil Aeronautics Board has defined the scope of its general investigation of domestic trunk airlines' passenger fares as embracing these four major issues:

- The justness and reasonableness of the general level of fares, but not individual fares.

- The lawfulness of a tapering fare structure.

- The lawfulness of the \$1 fare hike established by domestic lines last April.

- The charging of first-class fares on segments of flights designated and operated as long-haul coach flights.

The case was instituted in April, 1952, when airlines proposed the \$1 fare hike and elimination of the 5% round-trip discount. The \$1 increase went into effect but the round-trip proposal has since been discarded.





STARFIRE almost lost in a swirl of smoke as it follows along behind the rockets which it has just fired. Plane crew never sees target, since electronically zeroed-in and fired rocket salvos pin-point it.

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## Military

## Photo News

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AVRO 698 delta-wing bomber, demonstrated recently at the Farnborough show, is powered by four Rolls-Royce Avon jet engines of undisclosed power. The plane was ordered off the drawing board for use by the RAF.



THIS GIANT HELICOPTER is the Hughes XH-17 "flying crane," designed to lift a 25,000 pound load for short distances, such as moving an Army tank across a river. Largest helicopter flying, it is 30 feet high and its rotor spans 125 feet—a span greater than that of the Boeing B-47 jet bomber.

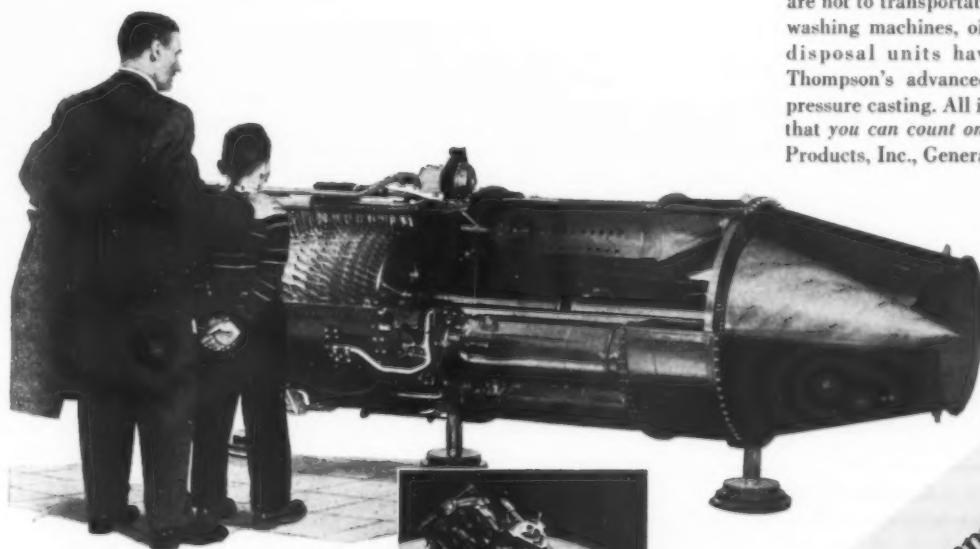


MAN'S LONG-TIME DREAM of flying faster than the rotation of the earth has now come true. A Navy plane has flown to an altitude of 13 miles, travelled 1,300 miles per hour, far exceeding the speed of sound. Far faster than the spin of the earth.

Ever since the Wright brothers first left the ground, the goal of the aviation industry has been to make flying faster and safer. Thompson Products has been part and parcel of this industry, striving always to make manufacture more precise and cheaper—to discover new ways to use new metals, to introduce new processes and teach craftsmen new, valuable skills. Today Thompson makes parts and accessories for virtually every plane that flies, every vehicle on farm, rail and highway—and for ships on and under the sea, too.

But Thompson's contributions to industry are not to transportation alone. For example, washing machines, oil burners and garbage disposal units have been improved by Thompson's advanced methods of die and pressure casting. All industry is now learning that *you can count on Thompson*. Thompson Products, Inc., General Offices, Cleveland 17.

## *Catching up with the Sun*



**This new, boosted gear pump** is designed to handle jet engine fuel pressures up to 800 pounds per square inch—with highest efficiency. It is typical of the advanced engineering and production methods of Thompson Products' Accessories Division.



*You can count on* **Thompson Products**



ENGINEERS representing jet engine manufacturers discuss a technical problem with a Champion specialist during last day's session of Champion's 1952 Spark Plug & Ignition conference. Left to right are: R. Altounian, Wright Aeronautical Corp.; A. F. Yacovone, Pratt & Whitney; L. E. Lentz, Champion; H. Bansbach, Westinghouse Electric; B. W. Herrman, General Electric; and F. P. Seitz, Aeroproducts-Allison Division, General Motors.

## Spark Plug Meeting Covers Wide Field

Mixed plug use, fuel lead content, and TCP experience mark highlights of annual conference.

By JOSEPH S. MURPHY

THE ANNUAL Spark Plug and Ignition Conference sponsored by the Champion Spark Plug Company has earned itself a reputation for bringing to light new subjects and new problems in this relatively old field of aviation engineering and maintenance. This year's session, the eighth of its kind, held in Toledo, Ohio, last month, upheld this tradition, including three highlights of discussion:

- Use of mixed spark plug types in the same engines to combat wide variations of cylinder temperature.

- The prospect that fuel lead content will again be increased and a review of the effects of the increased lead, in use since November, 1951, on spark plug fouling.

- The status of military adoption of shell TCP fuel additive and its postponement resulting from Northwest Airlines' experience on Boeing 377 airplanes.

The use of mixed spark plug installations in the same engine brought similarly mixed opinions from the airlines in attendance. The practice has already been adopted by American, United and Pan American, and good success was reported by all three carriers in eliminating the fusing of spark plug electrodes and engine backfiring on take-off, both conditions attributed to the inability of one type spark plug to cope with temperature variations of the order of 100-125° within an engine cylinder.

American and Pan American reported use of the colder Champion R-33s spark plug in the rear position of

the entire front cylinder row of their R-2800 series engines and use of R-37S-1 plugs of the same manufacture in all other locations on the engine.

United carries the procedure a step further, selecting only the more critical of the front-row-rear plug positions, namely the #2, 4, 6, 14, 16, and 18 cylinders, for use of the R-33S plug, installing R-37S-1 plugs in the other 30 locations on the engine.

Although all three lines reported negligible maintenance problems in assuring that the correct plugs are installed in the proper positions, it was this feature that brought objection from other airlines in attendance, led by Chicago & Southern's R. L. ("Doc") Anderson and Eastern's F. W. Lochner, and gave rise to a discussion of such measures as "secondary corrections" for a condition that should warrant action by the engine manufacturer to correct the basic temperature variation.

### No Cylinder Redesign

Pratt & Whitney's A. F. Yacovone reported that there was no cylinder redesign in process, indicating P&W's "recognition of proper selection of spark plugs" as the correction. Champion's R. K. Christie indicated hopes that the new R56-S plug now approved for service test will be useable throughout the R-2800 engine.

Fuels with even higher tetraethyl lead content than that in use since the issuance of the Petroleum Administration for Defense Order #4 late last year are more to be expected than any reduction in lead content, the conference was told. Reviewing their experience in almost one year of operation with fuels of 4 cc lead content, the airlines had little to report in the way of effects, bad or otherwise, that could be traced to the added lead, either in increased spark plug removal rates or in need to reduce scheduled spark plug removal periods.

Adverse experience by Northwest Airlines in its service test of Shell Oil Company's TCP fuel additive (AMERICAN AVIATION, October 13), led Northwest suddenly to terminate use of TCP on its fleet of Boeing 377 airplanes and also proved to be a stumbling block in the path of a military move to include TCP in the specification for all high octane fuels.

The military appeared well justified in considering it, since experience with TCP in Convair B-36 operations, as well as in Korean helicopter usage, has been good. In the B-36, spark plug fouling ran high; TCP brought about a 70-90% reduction in spark plug removals. In helicopter use, at a time when Army medical personnel were said to be at the point of grounding the aircraft, the use

### Conference Notes

- Foreign airline representation was again strong, with ten airlines in attendance. Thirteen U. S. airlines provided 23 representatives.
- High altitude ¾"-20 spark plugs appear to be gaining favor over the "antiquated" ¾"-24 design, with one airline, American, already adopting the change. Champion's equivalent designations for the high altitude plugs, which require a change in ignition leads, are:

#### Standard

R-37S-1  
R-33S  
R-56S

#### High Altitude

R-115  
R-103  
R-111

- Champion's 1952 version of the spark plug data chart was presented at the meeting. For details see AMERICAN AVIATION, October 27.



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## Ready for Hanging

One of a series of selected portraits of some very select members of the airline family, as seen by the eye of Richard E. Chamberlain.



THE MECHANIC

Foundation of the airline. A&E 20-year man. Neat in appearance in spotless white coveralls. Never profane around the terminal building. Gives all verbal complaints personal attention. NEVER writes off a written squawk.

of TCP provided a 60-85% reduction in spark plug fouling incidents.

Indications are that the military will halt action on wholesale adoption of TCP until the cause of the Northwest exhaust system contamination is determined, anticipating that similar experience might be met in operation of the Boeing C-97, military version of the B-377, and possibly in Wright turbo-compound engines.

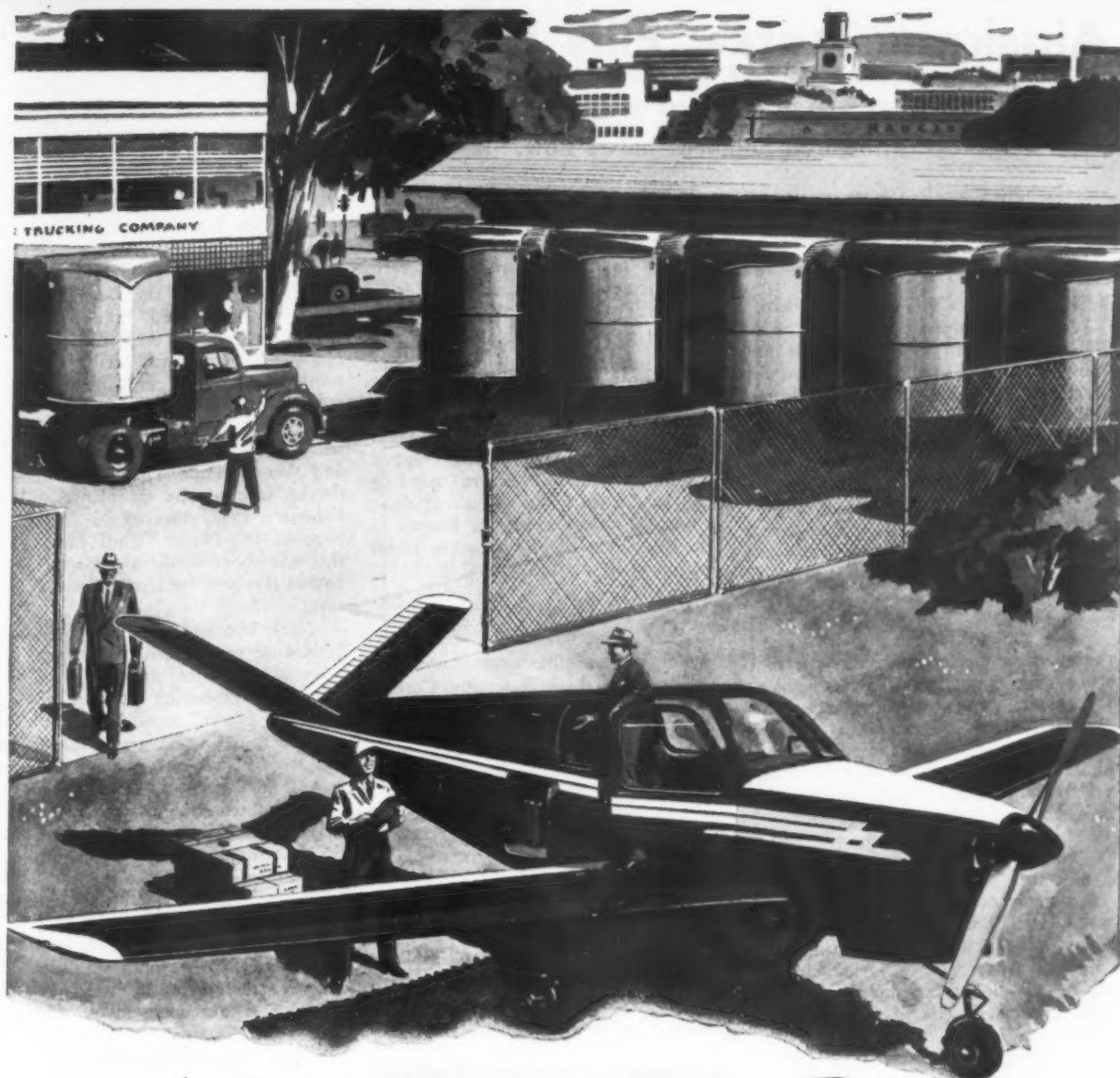
Not bothered at present by the type of exhaust system build-up experienced by NWA, airline service testing of TCP is continuing in Trans World Airlines Lockheed 049 aircraft using Wright 3350 BA engines and in American Airlines Douglas DC-6 aircoach aircraft using Pratt & Whitney R-2800 engines. To the airlines the success of TCP has a dollar value, since its ability to combat spark plug fouling permits operation at

leaner mixtures, providing an economy that would more than offset the cost of the TCP, which has been estimated to be about 1/10 of a cent per gallon.

Spark plug cleaners held the spotlight on the session's opening day discussion, with airlines indicating interest in the availability of liquid cleaners. Their use was in question a year ago, when the trend was toward one-time use of spark plugs, but a reversal of this trend has made cleaning equipment again a center of interest.

Development of improved cleaners appears to hinge on airline feeling toward a cleaning device costing in the \$800-\$1,000 range. Two models, a Champion unit produced in limited quantities in 1946 and another more recently developed by the Vapor Blast Manufacturing Company, attracted major interest.

AMERICAN AVIATION



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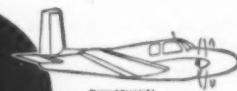
find Beechcrafts. Faced with today's double job of building defense production and keeping up the flow of consumer goods, executives find Beechcraft ownership more valuable (and profitable) than ever. Investigate. Call your Beechcraft distributor. Or write Beech Aircraft Corporation, Wichita, Kansas, U.S.A.



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**BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS**



# Alaskans Agree: Ellis is Hard to Beat

**Carrier has won praise from competitors and public for a tough operation well handled: here's how.**

By ERIC BRAMLEY

(One of a series of articles by AMERICAN AVIATION's executive editor.)

UPON ARRIVING in Ketchikan, Alaska, aboard one of Ellis Air Lines' Grumman Goose amphibians from Juneau, and landing by the town's waterfront, I walked up the ramp from the dock to the airline's ticket office.

The office looked like a small edition of Washington National Airport on a busy Friday. It was jammed; everyone seemed to be going somewhere—native Indians, commercial fishermen, a few tourists, businessmen, mothers with their children.

"Where can I find Bob Ellis?" I asked an agent.

Bob Ellis turned out to be that man behind the counter, dressed in the red sports shirt, gray slacks and crepe-soled shoes, who was dispatching trips, announcing flights on the public address system, hustling baggage, answering phones, and handling tickets. Not exactly what you'd expect to find the president and general manager doing.

## Catch the Boss

For the next two days, the problem was to catch Bob Ellis. When he wasn't doing all these things behind the counter, he was out flying trips. He was typical of the other employees of this airline, which is one of the busiest in Alaska, and which carries more passengers than any other carrier (39,165 in 1951).

Probably one of the best tributes to this airline is what the other people in Alaskan aviation think about it. These people generally have varied opinions on aviation matters, but I found that wherever I went in Alaska they agreed on one thing—Ellis has an operation that is hard to beat. One small bush operator in an area 800 miles away told me that he hoped someday to be able to send his three pilots to Ketchikan to study the Ellis operation.

Ellis differs from most Alaskan carriers in that:

- It is one of the two carriers certificated by CAB for what are primarily water operations. There are only three airports anywhere close to the places served by Ellis: Juneau, Gustavus, 52 miles northwest of Juneau, and Annette Island, 21 miles from Ketchikan. Only the latter is used regularly (Juneau is a water operation).

- It has 26 stockholders—employees who share in the profits and losses and who buy stock each year to take care of expansion needs. They start out each year by agreeing on each other's salaries.

- It runs a shopping service, buying over \$50,000 worth of merchandise a year for customers in outlying areas, and delivering the goods.

The terrain served by Ellis, accurately described in a company folder, consists of "sheltered fiords, rugged mountains, massive glaciers winding down to the sea." You see all of these on the 231-mile flight from Juneau to Ketchikan, one of the most beautiful trips anywhere in Alaska.

## Cardinal Rule

The airline has some weather to contend with in the summertime. On occasions, it is thick and rainy. Certain minimums are observed, but the cardinal rule that pilots must follow is:

"A pilot at no time shall place himself in a position that he cannot (a) make a normal safe landing straight ahead, or (b) make a 180-degree turn by visual reference and return to a safe landing area."

This means that if the weather gets so bad that you can't fly, put your airplane down on the water and taxi. "I guess I've taxied hundreds of miles in bad weather," Bob Ellis recalls. And the company has a remarkable safety record

—it has had only one serious accident and one passenger fatality in its history. It has now racked up over 9,000,000 passenger-miles without a fatality.

Ellis, a native of Vermont, learned to fly at the Naval Air Station, Seattle, in 1927, and went to Alaska two years later, engaging in various bush flying activities, mostly in the Ketchikan area. In 1936, he formed Ellis Air Lines, which consisted of one Waco airplane. His wife's bicycle was used for ground transportation. The company was incorporated in 1940.

At the start of the war, the airline had a collection of Bellanca, Stinson, and Waco aircraft. The Navy commandeered four of the six planes and by February, 1942, three of the four pilots were in the Navy. "Until May, 1942, this was about all the aircraft the Navy had in this area for coastal patrol," Ellis says.

Jack Sherman, who had been with Ellis since the company's first year and who is now vice president-operations, was in charge during the war. Ellis was a Naval officer, spending considerable time in the Aleutian area. He now has the rank of captain in the Naval Reserve.

"At the end of the war, we decided that the bush pilot days were over and bought our first twin-engine airplane, a Grumman G21A Goose," Ellis states. "We have disposed of all the old equipment and are now the proud possessors of six Grummans (bought from surplus) and three Aeronca seaplanes. We have 75 employees, of which 11 are pilots, and our total investment is a little over \$400,000."

## Stockholder Plan

Explaining the unique stockholder-employee set-up, he says: "Annually, we examine all of our non-stockholder employees. If we think any of them are stalwarts and will add strength to the company, they are proposed for membership, and a stockholder vote is taken. All the stockholder-employees work for a monthly wage which is agreed upon at a meeting in January and holds for the whole year. Everybody agrees on everybody else's wage.

"In the final analysis, it is, of course, relative because any profit or loss of the company is shared proportionately. The employees at this time agree to purchase a certain amount of stock during the year that is relatively equivalent to the capital expansion needs of the company for the coming year."

Advantages of the plan are that the employees have an incentive because they have a financial interest in the company;



Bob Ellis

it allows expansion without resorting to loans; it permits curtailment of salaries in lean years and increases in good years. Drawbacks are that lack of initiative can't be punished as effectively as it should, and employees sometimes get a "junior executive" complex.

Ellis probably has the nearest thing to a transportation monopoly in Alaska. The territory is all mountains and water. There are no roads, few boats. If you have to travel, you fly.

Bob Ellis takes this monopoly very seriously. "The airline that serves this area must serve all the people in all the communities," he says. "It should not be permitted to skim the cream by serving only the more populous towns. We have no pilot-owner or non-scheduled problems here because we have done our job of serving all of our area all of the time."

Ellis' main routes are Juneau-Petersburg-Wrangell-Ketchikan, 231 miles; Ketchikan-Klawak-Craig-Hydaburg-Ketchikan, 136 miles; Ketchikan to Annette Island, nearest airport to Ketchikan, served by Pan American, 21 miles. Newest service, only recently opened, is to Prince Rupert, Canada, a 45-minute flight from Ketchikan.

#### "Nice" Competition

Between Juneau and Ketchikan, Ellis operates alongside Alaska Coastal Airlines, which has headquarters in Juneau. In the latter city, Coastal handles all Ellis' ticketing and reservations through its office. Ellis does the same for Coastal in Ketchikan. Each office quotes the schedules of both lines to inquiring passengers. "We're competing in a nice way, but we're competing," Ellis says.

The term "main routes" as applied to Ellis is somewhat of a misnomer. The scope of the operation can probably best be summed up by saying that there are eight points receiving at least once-daily service, 23 served at least once a week, and 67 that were served at least five times last year.

The average Ellis passenger trip is 60 miles, average time in flight between landings is 17 minutes, passenger fare is 16¢ a mile.

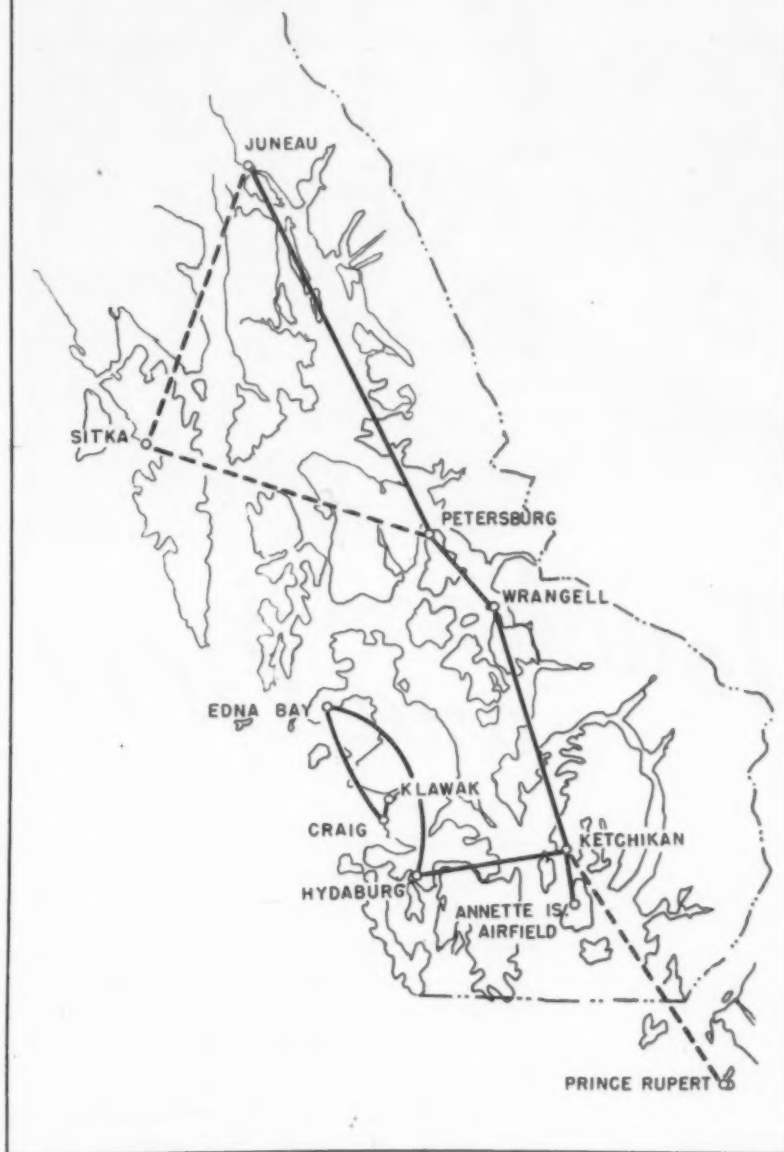
Ellis doesn't lose any business because of bad weather; there's no other way for the traffic to move. But if today's weather is bad, the company has two days' business to handle tomorrow. Says Bob Ellis: "We may be days late, but we never miss a trip."

On top of all this, Ellis finds time to run a shopping service. This started back in the old days when people in outlying areas relied on Bob Ellis to do their buying in Ketchikan.

Through the years, this service has grown, and purchases now exceed \$50,000 annually. The customer fills out an

## Ellis Air Lines' Routes

— Mail Routes — — Non-mail Routes



Ellis order blank and gives it to the pilot. Ordering in Ketchikan is done by phone, and merchants deliver the goods to the airline office. Ellis' deliveries are COD, and the merchants bill the company at the end of the month.

Here is a recent month's business:

Groceries, meats and bakery .....	\$452.99
Ice cream .....	894.92
Drugs .....	234.28
Clothing, shoes, shoe repair .....	506.62
Jewelry, watch repair ....	72.75
Laundry, dry cleaning ...	1,004.81

Marine, hardware, parts ..	1,216.69
Sport goods .....	274.90
Electrical, radio, repair work .....	206.19
Miscellaneous .....	1,176.84

6,040.99

I looked through a batch of order blanks to see what people were buying. Here are some orders: "1 men's hat 7 3/8 blueish gray," half a gallon of peanut oil, three lipsticks, 5 lbs. of hamburger, one Toni refill, 1 lb. putty, "1 pr. of nice men's house slippers, size 9D." The



# Touchdown and GO!

"Here is the answer. . ." said a distinguished military leader as he witnessed Chase Assault Transports deliver troops, vehicles and weapons to forward combat areas **by landing in unprepared fields.**

But this answer was not found by modifying existing planes; such attempts failed miserably. Chase planes are designed especially to provide the answer. They represent a noble accomplishment by the Air Force-Army-Chase team—an accomplishment which replaces, as the primary means of delivery, the less reliable, more costly, more hazardous techniques which were developed for interim use.

Delivery of troops is fast, safe with Chase planes. It's touchdown and **Go!**



only charge for the service is the regular air express charge.

The Ellis overhaul shop on the Ketchikan waterfront was the cleanest and most modern that I saw in Alaska. All work is performed here except 1,000-hour overhaul of the Grumman's Pratt & Whitney Wasp Junior R985 engines. This is handled in Seattle by West Coast Aircraft Sales and Service.

The fact that Ellis has a monopoly might lead to the conclusion that the company is making a lot of money, but it isn't. One of the principal reasons is maintenance, which, Ellis points out, runs much higher for seaplanes than for landplanes. Landings and take-offs douse engines and airframes with salt water. Propeller blades must be discarded after 2,000 hours. Planes are washed down with fresh water every night, hulls drained and flushed. Damage and wear to hulls while the planes are moored mounts up.

## Low Utilization

Despite the frenzied summer activity, aircraft utilization doesn't start to compare with that of U.S. operators. In December, it amounts to 56 minutes a day, rising to 3 hours 19 minutes in August. The 1951 average was 1 hour 52 minutes. This is because the company must have sufficient equipment to handle the peak season business, and it sits idle in the off season—the complaint of all Alaskan operators. CAB, in awarding Ellis a final mail rate recently, pointed to "climatic and seasonal aspects" and concluded that "all aircraft operated by Ellis . . . were necessary in the conduct of its operations."

Ellis gives another rather unique reason for high costs: "We expect to make 18,000 landings in 1952. At least 12,000 of these will be at points with no local telephones, so the plane will have to circle prior to landing—an extra two minutes of flying or a total of 400 hours of extra flying per year to alert people that the plane has arrived."

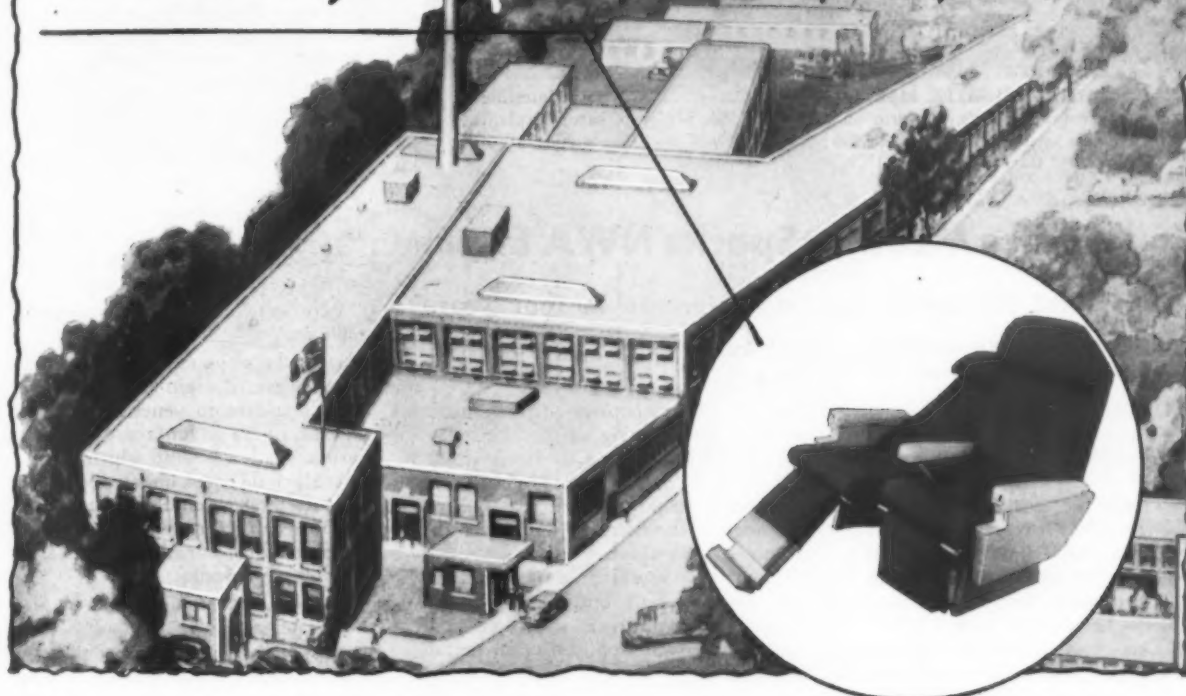
Ellis' pilots, incidentally, average about 600 hours of flying a year, and they earn their money. The one-man crew (there's no co-pilot) helps load and unload baggage, mail and cargo at each stop. All the hops are short—lots of landings and take-offs. Pilots are paid a straight salary, starting at \$650 a month on the Aeroncas.

Bob Ellis sees good times ahead, with development of tourism and establishment of year-round industries in southeast Alaska. The developing economy will necessitate some new equipment, larger than the Goose, but he doesn't know what it will be. He's keeping an eye on the helicopter, and will venture a guess that he may be using them on most of his services in 10 years.



# AEROTHERM AIRCRAFT SEATS

*offer you luxurious comfort day and night  
... servicing is quick and easy anywhere!*



The most complete line of standard designs and new, improved aircraft seats is available to you now with reactivation of the Bantam plant (formerly Warren McArthur Corp.) by The Aerotec Corporation and The Thermix Corporation.

Your passengers ride confidently in Aerotherm Aircraft Seats. Each design combines the comfort and safety features proven most desirable by airline experience. These seats also have gained enviable records for easy, low-cost maintenance.

An example is the Aerotherm Model 406D double passenger aircraft seat shown here. Seat and reclining back (maximum

62°) are cushioned with body-fitting foam rubber for comfort day and night. This model, designed for use in DC-4 type aircraft, offers a choice of upholstery and finish to suit your taste. Frame structure is of strong, lightweight aluminum and magnesium alloys. Optional features include food tray brackets, leg rests, and life jacket pocket.

When faced with the problem of seating your next ship, consult our engineers who have had wide experience in serving other leading airlines. Write today for descriptive literature on Aerotherm Aircraft Seats.

## FIELD PROJECT ENGINEERS—AIRCRAFT DIVISION

CLEVELAND 29, OHIO  
Jay Engineering Co., 5413 Pearl Rd.

NORWALK, CONN.  
John S. Hammond, Jr., 304 West Ave.

REG. TRADE MARK

DAYTON 3, OHIO  
Jay Engr. Co., 1517 East 3rd St.

WICHITA 8, KANSAS  
J. E. Freeman & Assoc., 4913 East Lewis St.

ROSLYN HEIGHTS, L. I., N. Y.  
John S. Hammond, Jr., 25 Edwards St.

SEATTLE 2, WASH.  
Stanley R. Brett  
John E. Freeman & Assoc., 1616-F 43rd N.

LOS ANGELES 43, CAL.  
Fornas Engr. Co., 4545 West 62nd St.

MONTREAL 25, QUEBEC  
T. C. Chown Ltd., 1440 St. Catherine St., W.  
Canadian Affiliates

# THERMIX

## THE THERMIX CORPORATION

GREENWICH, CONN.

### PROJECT ENGINEERS

AEROTEC

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pd



NORTHWEST'S SALES MEETING hears W. J. "Red" Bell, interline manager (at speaker's platform on right, in front of his picture), explain the "This is NWA" visualizer which salesmen will use to acquaint other airlines and travel agents with NWA.

## Novel Sales Meeting Sparks NWA Effort

First Northwest system conference in four years marked by new techniques, visual aids.

**N**ORTHWEST Airlines' sales force is out after 6.5% of the domestic airline business, in terms of passenger-miles.

That's the goal (compared with 4.7% in 1952) over the next several years, but from the tenor of NWA's recent systemwide sales meeting in St. Paul, it's unlikely that the salesmen are going to be satisfied with 6.5%.

This was the first systemwide meeting in four years, and was attended by over 100 people. All the sales managers were present, including those from all the Orient points. Previous meetings have been on a regional basis, but the success of this year's sessions will probably lead to annual system-wide conferences.

Noteworthy at this meeting were:

- A novel and effective sales conference technique, built around the theme "Know How" and "Show How."

- Disclosure that visual sales aids are to play a major part in the drive for increased business.

The first day of the conference was devoted entirely to "Know How," and featured panel discussions on agency and tour sales, sales promotion, interline, Orient and international, routes and prices, advertising, reservations, schedules, cargo, and policy.

Panels, particularly when there are questions from the floor, have a tendency to run overtime. This problem, however, was neatly solved. Panel members discussed developments in their fields for 15 or 20 minutes, leaving 10 to 15 minutes for questioning. At the end of the half hour, the panel

was cut off. Announcements were made that on the morning of the third day, all general office panel members would be at their desks in headquarters at 8:30 and would be available the remainder of the morning to answer the salesmen's questions.

On that morning, the general office did a rushing business. It was an effective way to meet objections that panel time was too short to permit thorough discussion.

An interesting feature of the "Know How" program was the policy panel—the last one of the day. To this panel were referred all policy questions that had arisen during the day, and decisions were made on the spot. Chairmanned by Amos Culbert, vice president—sales, the panel included Jim Mariner, general sales manager; J. B. Watschke, administrative assistant to Culbert; and Larry Kinports, George Hatch, R. G. Collins, and K. D. McKenzie, sales manager of the Orient, western, central, and eastern regions, respectively.

Policy questions were decided by a majority vote of the panel. Some examples:

- Should NWA have a policy of sending all salesmen to the Orient for educational and familiarization purposes? Everyone in the room had a chance to express an opinion. Chief point in favor was that some offices had never sent anyone to the Orient, and that salesmen are more enthusiastic about selling after they've been on the scene. Points against were: personnel turnover is a problem; "quickie" trips

## GROUND OBSERVER CORPS NEEDS 300,000 VOLUNTEERS

Early this summer top U.S. Air Force officials met with Civil Defense directors from 46 states and four territories, and reviewed in confidential detail the current efforts to defend America from surprise enemy attack.

"Despite a \$300,000,000 radar fence around the nation's perimeter, gaps exist through which enemy aircraft could penetrate our defenses undetected," the meeting was told.

That's why America needs a total of 500,000 civilian skywatchers as members of the Ground Observer Corps. Nearly 200,000 have already volunteered.

"The only practical means of filling the gaps in our defenses is through a 24-hour operation by civilian volunteers," the meeting was told.

Why isn't America's radar network sufficient?

Defense gaps exist because of radar's line of sight principle, and radar's failure to penetrate opaque masses. Every mountain, every hill casts a shadow behind which enemy aircraft could sneak undetected. Even in perfectly flat country the curvature of the earth shortens the effective range. Equally alarming, radar is susceptible to jamming.

These gaps cannot be filled by Air Force personnel due to the staggering expense. That's why civilians are needed in 27 perimeter states to man Ground Observer Corps stations 24 hours a day. Here is a critical, patriotic job that requires just a few hours a week from each volunteer.

Aircraft too are an important part of our national warning system and of course are the backbone of defense against attack. Three advanced Lockheed planes play a vital role:

The WV-2 *Super Constellation* Early Warning Aircraft, developed for the Navy and the Air Force to extend radar's range in a whole new concept of national defense.

The P2V *Neptune* Navy Patrol Bomber, charged by the Navy with anti-submarine patrol and protection of U. S. coastal waters.

And the F-94C *Starfire*, the nearly automatic all-weather interceptor, which does the final job of climbing to the attack at terrific speed, locating the invaders, and shooting them down with more than human accuracy.

When the U. S. has all necessary planes and personnel—civilian and military—it will be difficult for enemy aircraft to penetrate U.S. defenses.

*Leadership demands constant achievement*



**AIR  
DEFENSE  
FROM  
THE  
GROUND  
UP**



*Look to Lockheed  
for Leadership*

**AIR ATTACK!** This alarm could be sounded in the U.S. If it is, then time will be priceless.

The U.S. Air Force is ready to answer any alarm—with squadrons of Lockheed Starfire interceptors\* that can climb quickly to the attack, locate and knock out invading bombers in any weather, day or night.

*But first the alarm must be given. Somebody must spot the invaders.*

And there are only two ways to spot an air attack: (1) by radar, (2) with human eyes and ears. Ground radar stations cannot always spot planes flying under 5,000 feet. So we badly need civilian observers.

True, airplanes are being built to take our radar warning system off the ground. For this job Lockheed is producing WV-2 Early Warning Constellations with 360-degree radar.

Also the Navy has many Lockheed P2V Neptunes on antisubmarine patrol day and night. Their "eyes" guard against air attack too.

But we still need an additional 300,000 men and women observers to fill the low-level radar gaps. You give just a few hours a week. Call your Civilian Defense Office, or write to Ground Observers Corps, U.S. Air Force, Washington 25, D.C.

*\*Lockheed Starfire*

**LOCKHEED**

**AIRCRAFT CORPORATION**

BURBANK, CALIFORNIA, AND MARIETTA, GEORGIA





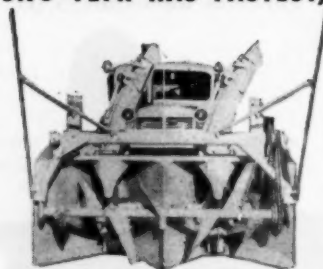
## New BROS Airport Rotary casts snow high or low in any direction!

The speed and control of this new Bros Sno-Flyer Rotary are amazing to see! In shallow snow, it can race like a blade plow, hitting speeds up to 25 m.p.h. . . and it goes through deeper, heavier snow faster than any other rotary. By separate hydraulic cab controls, the operator can aim the new exclusive casting chutes in any direction, individually or together. And for the greatest possible positive

control, he can adjust height of snow stream arc in a split second with the exclusive Bros segmented capping devices . . . just like crooking your finger!

He can spot-cast up to 150 feet away, casting high with favorable winds or casting low into the wind. He can cast away from buildings, parked planes or equipment. No other rotary offers snow stream control like this!

### SNO-FLYER HAS FASTEST, MOST POWERFUL BASIC DESIGN



In front, this rugged rotary has a rotating feeding rake which chops vertically at drifts, sending the snow back into two dual-bladed rotor discs which whip it straight up and out the casting chutes. This single direction snow travel is shorter and more efficient than that of any other rotary.

Special gathering wings increase plowing width from 9' to 14'. They can be lifted individually to clear obstructions, to clear spaces between landing lights and to clear tops of ground level lights. These wings fold back out of the way when not in use. A new adjustable loading chute fills trucks speedily on either side of rotary, wherever truck removal is required.

#### GET LATEST ROTARY CATALOG

This Bros Sno-Flyer catalog is packed with pictures and detailed explanations of Sno-Flyer performance. It's a must for any engineer interested in the most efficient snow removal at the lowest cost. Write for your free copy today!



## WM. BROS BOILER & MFG. CO.

ROAD MACHINERY DIVISION • MINNEAPOLIS 14, MINNESOTA

SNO-FLYER models available for 4-wheel-drive trucks, graders and crawler tractors. Also units for railroad and high altitude work.

are not worth the expense; all sales managers should go before sales representatives and others.

The panel's decision was that the people in attendance at the meeting would go first, and that following this, a program will be laid out to get more of the other personnel to the Orient.

• Should district offices receive credit for the cargo revenues they produce? It was pointed out that these offices spend time selling cargo, but receive no credit for the revenue. Decision was that cargo will be included and that sales quotas will be adjusted accordingly.

• Can travel agents be given "must ride" transportation to the Orient? The decision was that this type of transportation will be made available, but that district managers must screen requests carefully and recommend only productive agents.

The second day of the meeting—"Show How"—was in the form of a sideshow, entitled "The Greatest Show Business on Earth." It was a visual presentation, complete with films, costumes, live performers (including a hula dancer, advertising Hawaii) and a professional announcer.

It covered the history of NWA, where it operates, and what it has to offer. Featured was an unveiling of several of the new visual sales aids. Principal credit for preparing the "Show How" part of the program goes to John M. Cook, NWA's advertising director.

Evidence of the cooperation developed between the operations and sales departments was seen in the appearance at the meeting of Frank Judd, vice president-operations. Judd, high in his praise of the sales department, asserted that operations was "not particularly proud of some of the curves we've thrown you." The aim of both departments, he said, must be to "haul the mostest the farthest and the fastest."

He explained that eight more seats were being installed in the Stratocruisers by cutting down on washroom space, giving the plane a capacity of 83 on domestic trips. These additional seats will mean \$1,500,000 to \$2,000,000 more revenue annually. On international flights, these extra seats will be removed and washroom facilities re-installed.

Judd also said that Stratocruiser utilization has reached a new high of 9½ hours daily, and that reliability will be improved when the B-6 conversion of the engines is completed. Recent engine difficulties have been largely overcome by reducing overhaul time from 1,000 to 800 hours and dropping cruising altitudes to about 14,000 feet, he said.

J. B. Watschke, who handles sales

AMERICAN AVIATION

department budget matters, told the meeting that if NWA breaks even in November and December it will show a 1952 profit, before taxes, of \$1,029,761, against \$3,060,239 last year. The profit drop is largely due to the fact that costs are up 19% against a 13 1/2% increase in revenues.

Sales department expenses, Watschke said, are estimated at \$5,400,000 for 1952, compared with \$4,755,000 last year, a 13.56% increase attributable in large part to higher salaries and increased advertising expenditures. Through August, however, the sales department was 2% under its budget, he added.

The 1952 sales quota of \$44,559,536 should be topped by a few thousand dollars, he predicted. The 1952 ratio of sales department expense to nonmail revenue will be about 11.17% against 11.71% last year, showing progress toward the goal of 10%, he said.

NWA's share of the domestic passenger-miles in 1952 will be about 4.7%, and the aim over the next several years is to raise this to 6.5%, Watschke explained, adding that this means that by 1960 all seats now available will have to be sold.

NWA has coined a new word for its tours—"Airventures." Charles Grosser, in charge of the program, covered the tours that will be available—Orient, Alaska, Hawaii, Pacific Northwest, Washington, New York and others—and revealed that NWA sales personnel will receive a .5% commission on Airventure sales (not including the air transportation).

This program, Grosser said, should result in a substantial increase in tour sales. In the year ended September 30, NWA had sold 189 Hawaiian tours worth \$62,002 in revenue, six to Japan worth \$4,610, 47 to Alaska worth \$14,292, and 68 to New York and Washington worth \$5,835.

One of NWA's big 1953 drives will be on air travel plan sales, according to Dave Newton, sales promotion manager. He demonstrated one of the principal new visual sales aids, "This is the Universal Air Travel Plan," a 20-page leather-covered book explaining, mostly pictorially, exactly what the plan is. The salesman leafs through the book as he gives his sales talk to the prospect.

NWA got the visual sales idea from the Minnesota Life Insurance Co., which has found that this technique has more than cut in half the time

needed by its salesmen to make its insurance sales presentation, and has at the same time increased their effectiveness.

With this book, each NWA salesman will receive a 15-page booklet containing the sales presentation he is to give—what he is to say as he turns each page of the book. This speech is to be memorized—a point that will undoubtedly cause some controversy, because many salesmen prefer to improvise as they go along. However, the insurance company has pointed out, for example, that a baseball pitcher or a concert pianist attains perfection by

doing the same thing over and over. Their salesmen discovered that after they knew their speeches by heart they could watch the prospects' reactions while they were giving it, and that their effectiveness increased.

NWA sold 296 new travel plans in 1951 and is aiming for 380 in 1952. Next year, however, with the new visualizer, it wants 1,000 accounts with 8,000 new cardholders. And, starting November 1, the company is paying its salesmen \$5 for each plan they sell.

Newton also said that NWA wants \$250,000 revenue in 1953 from convention travel.

## Facts and Figures!..

### Figure:

Owned by Winona Cox, Dallas payroll clerk.

Brown hair, hazel eyes.

5'9", 135 lbs., 24, single.

That rake (like a SAC customer) never had it so good. Winona was our November girl last year, ringing bells with admiring letter-writers all over the world, including GIs in Korea, Japan, and Germany.

### Fact:

Southwest Airmotive supports, and believes in, the program of the Aviation Distributors & Manufacturers Association. In promoting greater integrity and cooperation among the manufacturers and distributors of aircraft parts and accessories, ADMA is performing an invaluable service for the entire industry. We salute this trail-blazing group and wish it well at its Annual Convention, Dec. 3-5, at The Kenilworth, Miami Beach, Fla.

**Southwest Airmotive** COMPANY  
LOVE FIELD DALLAS



# Direct Flight Cost Per Total Hour

The information contained in the charts below was extracted from official airline reports filed with the Civil Aeronautics Board by the Bureau of Air Operations. It provides direct flight costs per hour of flight as reported to the Board on Form 41.

## TWIN ENGINE AIRCRAFT—BY TYPE

YEAR ENDED JUNE 30, 1958 (IN DOLLARS)													
DOMESTIC							INTERNATIONAL						
	FLYING OPER. LESS RENTALS	RENTALS	DIR. MAINT.	DEPR'N	TOTAL	TOTAL HOURS FLOWN		FLYING OPER. LESS RENTALS	RENTALS	DIR. MAINT.	DEPR'N	TOTAL	TOTAL HOURS FLOWN
DC-3							DOM(CONT)						
TRUNK							M-302						
BRANIFF	44 90	-	17 56	11	62 57	34 282	PIIONEER	89 96	-	20 05	14 73	94 74	1 214
CAPITAL	48 25	10	14 97	3 03	60 54	65 801	TWA	73 27	32 97	37 79	21 40	165 43	21 237
CHI-SOU	44 71	-	12 09	45	57 25	39 315	M-404						
COLONIAL	46 26	-	18 14	3 65	68 08	31 323	EASTERN	75 93	-	34 93	63 39	174 26	29 617
CONT'L	48 10	-	11 88	2 03	56 01	25 148	TWA	87 34	-	18 23	54 53	160 09	10 237
EASTERN	46 63	-	12 05	10	58 77	151 436	CV-240						
NORTHWEST	45 41	2 72	14 39	2 77	65 29	21 437	AMERICAN	76 82	-	55 08	25 71	157 62	172 008
NORTHWEST	55 33	-	32 52	10 71	106 56	8 677	CONT'L	78 89	-	37 32	20 18	136 40	14 361
TWA	45 33	84	17 05	1 19	64 03	92 012	NORTHEAST	85 21	-	61 82	36 26	183 39	9 979
UNITED	48 31	-	12 09	1 01	59 03	121 053	WESTERN	72 96	-	30 13	18 67	121 76	22 987
WESTERN	48 31	-	9 96	5 13	63 40	32 575							
LOCAL							T-50						
BONANZA	39 22	-	30 00	6 19	75 41	6 482	WINGINS	18 09	-	6 79	3 58	28 46	3 224
CENTRAL	38 81	-	14 97	13 96	67 74	11 434	INTERN'L						
EMPIRE	43 19	-	13 43	3 30	60 12	9 109	DC-3						
FRONTIER	44 18	-	13 67	5 50	63 35	32 836	CANIBREAN	47 43	-	31 95	6 14	85 52	4 702
LAKE CENT	38 59	81	22 13	3 54	65 06	8 566	CHI-SOU	44 60	-	12 67	23	57 49	1 238
PIDMONT	41 37	-	16 89	3 33	61 59	30 880	HAWAIIAN	43 52	-	17 76	5 43	66 71	23 172
PIIONEER	41 78	-	15 00	3 03	59 81	27 101	PANAURA	71 18	-	15 16	51	96 86	13 293
ROBINSON	46 56	84	20 10	5 62	73 12	12 237	PAA-ATL	52 84	4 23	28 20	2 10	118 37	1 449
SOUTHERN	43 43	-	18 49	7 39	69 31	22 158	PAA-LAD	54 04	11	17 95	8 07	64 03	9 835
SOUTHWEST	39 38	-	10 41	4 32	54 10	20 412	TRANS-PAC.	37 16	-	13 70	5 45	56 32	11 290
TRANS TEX	41 14	-	16 91	1 67	59 72	20 260	UMCA	11 97	93 84	-	-	105 81	680
WLT COAST	38 66	-	10 15	2 01	48 82	11 167							
WIS CENT.	40 88	25	21 54	7 30	69 97	15 371							
DC-35							C-46						
CAPITAL	60 33	-	24 35	27 69	112 37	5 690	NATIONAL	89 32	2 75	45 38	4 78	142 23	80
							PAA-LAD	81 84	5 65	28 77	9 11	125 36	15 804
C-45							L-18						
NATIONAL	54 57	1 79	30 65	5 78	92 79	3 933	NATIONAL	42 60	-	21 60	1 40	65 60	5
SLICK	54 33	99	18 03	1 86	74 92	48 855	CV-240						
							PAA-LAD	104 47	4	57 21	53 70	215 43	23 911
L-18													
NATIONAL	41 08	-	30 78	68	62 54	29 684							

## FOUR ENGINE AIRCRAFT—BY TYPE

YEAR ENDED JUNE 30, 1958 (IN DOLLARS)													
DOMESTIC						INTERN'L							
	FLYING OPER. LESS RENTALS	RENTALS	DIR. MAINT.	DEPR'N	TOTAL	TOTAL HOURS FLOWN		FLYING OPER. LESS RENTALS	RENTALS	DIR. MAINT.	DEPR'N	TOTAL	TOTAL HOURS FLOWN
DC-4							DC-4						
AMERICAN	70 15	-	63 87	34 27	177 29	14 961	AMERICAN	70 94	-	84 13	22 53	177 60	144
BRANIFF	83 87	-	37 73	10 58	131 97	18 297	BRANIFF	110 10	-	68 84	11 08	190 10	5 781
CAPITAL	80 65	1 66	29 69	14 07	124 07	73 180	COLONIAL	97 82	-	47 71	21 89	167 43	3 969
COLONIAL	75 67	-	46 79	22 78	145 24	5 399	EASTERN	90 83	3 24	60 50	10 46	164 83	276
CONT'L	97 08	136 40	60 87	58	204 73	958	NATIONAL	79 79	1 98	45 81	8 22	135 80	340
EASTERN	83 73	15 51	38 10	20 88	152 92	86 194	NORTHWEST	111 22	11 72	44 47	12 23	179 64	27 686
NATIONAL	84 84	26 48	35 24	7 59	133 86	22 414	PANAURA	137 06	-	82 37	17 96	237 39	6 792
NORTHWEST	38 91	91 63	8 08	-	137 92	152	PAA-ALASKA	97 13	4 02	34 95	21 40	157 49	18 713
NORTHWEST	94 99	5 01	43 00	14 24	157 25	41 815	PAA-ATL	122 85	22 75	64 46	21 55	231 59	15 440
TWA	63 79	5 12	52 59	1 17	122 65	33 335	PAA-LAD	107 70	8 39	38 96	11 62	166 87	86 222
UNITED	81 40	-	31 88	8 35	121 63	43 860	PAA-PAC	130 09	7 13	32 65	11 72	181 59	8 692
WESTERN	80 59	-	29 38	10 74	120 70	13 329	TWA	122 01	30 71	16 93	72	168 96	1 288
DC-6							DC-6						
AMERICAN	119 85	-	65 74	36 39	221 98	149 019	AMERICAN	129 83	-	68 07	36 34	234 24	9 078
BRANIFF	131 33	-	57 48	38 69	227 50	14 207	BRANIFF	173 78	10	61 08	40 56	275 51	11 378
CONT'L	157 90	140 71	-	-	298 61	2 821	NATIONAL	107 71	-	46 68	33 89	188 28	3 188
NATIONAL	107 87	14 81	50 12	34 80	207 60	24 755	PANAURA	196 29	-	119 97	54 82	371 08	10 744
UNITED	127 63	-	38 32	44 34	208 28	138 035	PAA-LAD	86 77	293 16	-	-	379 93	3 394
DC-6A							DC-6A						
SLICK	139 19	-	50 12	56 93	246 24	4 091	PAA-ATL	239 62	445 74	8 86	14	692 36	745
							PAA-LAD	199 10	498 03	-	-	697 13	171
DC-6B							DC-6B						
AMERICAN	126 95	-	53 78	59 77	240 51	48 145	AMERICAN	139 57	-	53 00	40 14	251 71	2 498
CONT'L	157 70	143 87	-	-	301 57	16 451	PANAURA	198 64	-	82 81	59 56	341 01	6 773
NATIONAL	134 62	130 90	-	-	265 52	444	PAA-ATL	165 78	-	52 29	74 97	293 03	4 118
UNITED	142 78	-	35 33	47 39	225 51	30 683	PAA-LAD	99 75	300 63	-	-	400 38	224
L-49							L-49						
CAPITAL	141 22	-	98 92	50 47	290 61	11 613	PAA-ATL	216 04	-	69 98	71 77	357 79	24 181
TWA	132 32	75	69 82	53 99	256 88	81 382	PAA-LAD	166 61	-	73 18	71 02	310 75	19 388
L-649							PAA-PAC	241 31	-	72 87	72 59	386 78	2 512
CHI-SOU	143 28	-	46 62	70 28	260 16	13 760	L-649						
L-749							CHI-SOU	170 29	-	51 98	77 36	299 64	5 482
CAPITAL	123 00	-	51 42	69 33	243 75	425	L-749						
EASTERN	144 67	-	51 82	17 10	213 59	63 819	EASTERN	152 81	-	62 75	21 55	236 31	12 087
TWA	130 45	-	56 24	57 46	244 15	39 833	TWA	212 22	-	62 51	75 07	349 80	56 389
L-1049							B-277						
EASTERN	164 69	-	83 80	110 47	358 97	19 108	NORTHWEST	279 54	30	125 77	229 87	635 48	4 301
B-277							PAA-ATL	265 61	170	139 23	118 73	523 40	31 788
EASTERN	-	396 77	-	-	396 77	1 005	PAA-LAD	261 04	280	149 04	121 65	521 64	5 055
NORTHWEST	215 89	11	120 46	93 66	430 32	29 913	PAA-PAC	249 82	12	158 96	95 07	494 98	23 355
							UNITED	220 94	-	95 42	141 27	487 64	12 765

NOTE: ALL DATA AS REPORTED BY CARRIERS.

\* DENOTES NEGATIVE FIGURE.

DATA NOT AVAILABLE BECAUSE OF EXTENDED REPORT FILING FOR DELTA AND FLYING TIGER DUE TO CARRIER YEAR END AND FOR MID-CONTINENT DUE TO MERGER.

CIVIL AERONAUTICS BOARD  
BUREAU OF AIR OPERATIONS  
ACCOUNTING AND STATISTICS DIVISION





Panagra is the only U. S. airline in its 25th year of experience in South America.

## Splendid overnight Services to

# SOUTH AMERICA

10 Flights Weekly



## El InterAmericano

Only daily DC-6 to South America! Famous sleeper offers Red Carpet luxury . . . Gourmet Galley meals with complimentary cocktails and fine wines, the exclusive "Fiesta Lounge," bed-length berths.

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Only pressurized tourist service to South America! DC-6B's that fly more than 300 M.P.H. Save up to 25%.

For reservations, call your Travel Agent or Pan American World Airways, U. S. Sales Agent for—

El InterAmericano and El Pacifico fly from Miami to Panama, over the route of Pan American and on to Buenos Aires over Panagra's route.



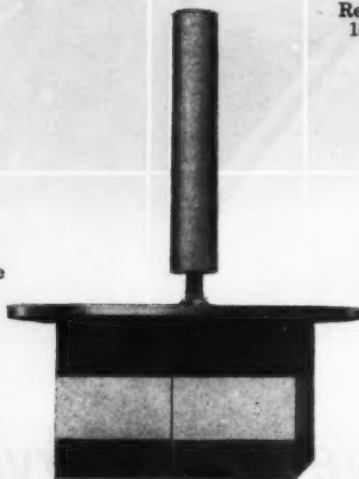
Pan American-Grace Airways **PANAGRA**  
WORLD'S FRIENDLIEST AIRLINE



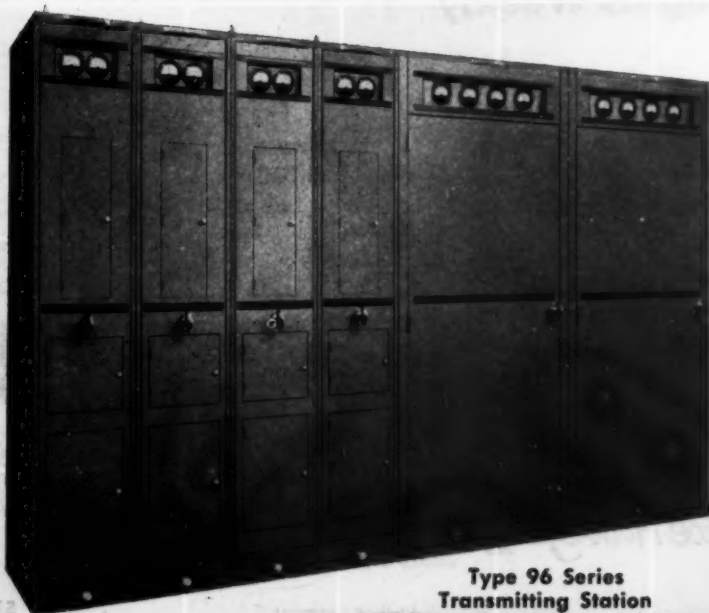
**Type 396A**  
**Transmitter Station**  
 Single channel 250 watts 118-132 mc/s  
 Maximum dependability for unattended service



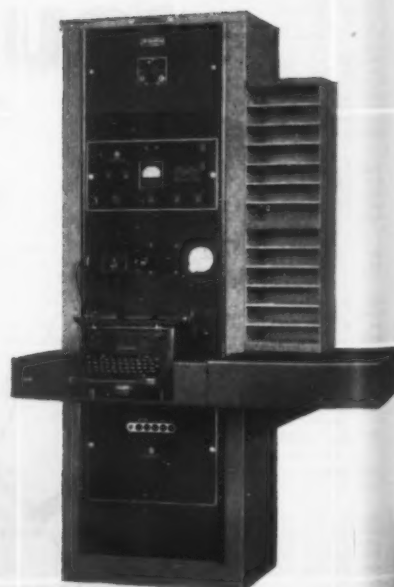
**Type 440A**  
**VHF Airborne Communications System**  
 Receiver • Power Supply • Transmitter  
 180 Channel 118-136 mc/s, 50 watt output



**Type 482A**  
**Terminal VHF Omni-Range Unit**  
 Low cost packaged let down facility for airline stops  
 Operates with present VOR airborne equipment



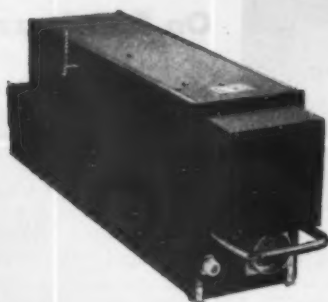
**Type 96 Series**  
**Transmitting Station**  
 96D Transmitter 2500 watts, 2-26 mc/s  
 96-200C Transmitter 2400 watts, 125-525 kc/s  
 50H Modulator • 36D Rectifier



**Type 428**  
**Packaged Complete VHF Station**  
 Receiver: Type 305A  
 Transmitter: Type 406A, 50 watt output  
 Nothing else to buy

**wilcox**  
**ELECTRIC COMPANY, INC.**

Fourteenth and Chestnut  
 Kansas City 1, Missouri, U.S.A.



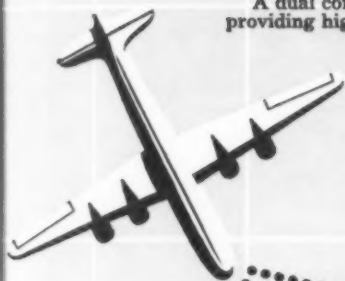
**Type 429A  
Glideslope Receiver**

A dual conversion superheterodyne receiver  
providing highly reliable I.L.S. aircraft navigation



**Type 99A  
Multi-Frequency Transmitter**

Provides any combination up to four R. F.  
channels for operation 125-525 kc/s, 2-18 mc/s,  
400 watt; and 118-132 mc/s, 250 watt



*means dependable communications*

**D**ependable communication and navigation . . .  
night or day . . . in fog or ceiling unlimited . . . that's  
what the name Wilcox means to aircraft operators  
all over the world. For, wherever men fly, Wilcox  
equipment has proved itself in years of steady  
service.

*For complete specifications of equipment write us today.*



## Extra Section

By William D. Perreault



**V**ICKERS Incorporated, of Detroit, does an effective job of pointing up the need for efficient aircraft engine accessories in a display board used to house Vickers equipment at SAE shows and similar gatherings: "Each 5% overall efficiency saved represents 9.2 horsepower; 993 pounds of fuel per 100 hours, 165 gallons per 100 hours and \$59.55 per 100 hours." Figures are based on four Vickers PV-3915 pumps per aircraft.

An interesting aspect of the suggestion system awards at Westinghouse Electric Corp. is that awards are based on the disclosure or description of an invention or idea believed to be patentable. Westinghouse paid out about \$95,000 for such suggestions in the first seven months of 1952, up 80% over the comparable period last year. Other features of the Westinghouse arrangement include a group of 35 committees, each specializing in a particular line, which rate the suggestions and the special award of \$200 to the most meritorious idea in each group of 50. Awards have ranged up to \$5,000.

One of our West Coast readers forwarded a clipping from the Long Beach, Calif., *Independent-Press Telegram* relating this incident. "Bill Morrissey, chief of flight operations for Douglas Aircraft Co. at its Long Beach plant, reports he was driving one of the company cars north on the north-south taxi strip the other day when the tower called him by radio and advised him to hold at Runway 25R because a plane was about to take off. Bill halted, but just as he did so, a huge jackrabbit leaped up and sped off to the west on the runway. Feeling facetious, Bill radioed the tower: 'Say, you've got a jackrabbit taking off on that runway.' 'Well,' whipped back the tower, 'he's been cleared.'"

You've probably never heard of the Hindu sage Bharadwaj, but it seems that this boy had quite a head start in the aviation field. A 3,000-year-old manuscript has recently been uncovered in India and announced by the International Academy of Sanskrit Research, which attributed to Bharadwaj eight chapters on the design of fireproof and breakproof airplanes. He is said to have described accurately the need for curved airfoils and listed 16 metals which, because of their characteristics, were well suited to aircraft construction. We'll await with interest any new development giving more definition to this fireproof and breakproof aircraft.

We promise to drop this matter of flying saucers after this attempt which we couldn't resist. Thumbing through our photo files on serious business we found this device, labeled a "flying wheel" by its inventor, Jack A. Philpott of New Orleans. On checking we found it had been proposed as a serious venture and had been described in some detail in our November 1, 1943, issue. Designed so that "practically anyone" can learn to fly it, the "flying wheel" would ascend and descend vertically, hover motionless (this we believe), or fly faster and higher than the helicopter.



The "Flying Wheel"

## Rework Cuts Costs On Fuel Nozzles

An idea and a 37 cent rework are saving Capital Airlines up to \$700 monthly in the salvage of fuel injector nozzles in the engines of its Lockheed Constellations.

Experience at Capital indicated that fuel injector nozzles costing \$7.80 each were becoming pitted after each 1,000 hours service to the extent that replacement was a necessity. In February of 1952 Capital spent some \$757 for replacement nozzles.

The solution for Capital was a method of refacing the nozzles, one that had to be easy and inexpensive. Accessory shop foreman F. J. Morys and machine shop supervisor A. Pratchenko provided this solution. Using a standard automobile grinding machine, which Capital purchased at a cost of approximately \$300, the pair designed an adaptor to hold the nozzle in place and at the correct angle to the grinding wheel. The result: in July 109 nozzles were refaced at a labor cost of 37 cents each or a total cost of \$40.33, a saving of over \$700 compared with Capital's experience only five months earlier.

## New Material Stretches Disconnect Collar Life

Extended service life of Lockheed L-649 cabin supercharger drive shaft disconnect units has been made possible by a Chicago & Southern Air Lines designed disconnect shaft collar. Changing the collar material from the original steel to aluminum bronze, C&S has developed a salvage procedure for shafts that are worn at the point of collar contact and is able to return the worn shafts to service with special new collars to form a matched assembly.

Compared with original shaft and collar assemblies which averaged 700 hours of service, the C&S reworked units are providing 1,600 hours, full engine run service. One assembly, having completed 2,744 hours was inspected and found satisfactory for further use.

C&S specifies use of Shell "Dolium" to provide lubrication at the point of shaft-to-collar contact.

## Dimpled Tread Tried

A dimpled tread tire now undergoing service test by American Airlines in the nose wheel position of Convair 240 aircraft is a B. F. Goodrich development and is estimated by the manufacturer to give from 25 to 50% more service life than the conventional rib tread type.



## How Pioneer's typing pool cut secretarial overhead by 20%

• **Remington Electri-conomy typewriters enable expanding airline to handle twice the volume of paperwork... with 20% fewer typists!**

► Five years ago Pioneer Air Lines had seven DC-3 airplanes, and carried 67,000 passengers. Today, they operate nine giant Martin Pacemasters, and expect to carry 300,000 people annually. ► During this 5-year expansion, Pioneer's volume of paperwork *doubled!* Yet their office staff consistently stayed ahead of schedule. And did it with 20% fewer people.

► What's The Secret? Gen. Smith says: "Pool set-up enables us to get max-

imum production from each typist. But the big 'reason-why' is the Remington Electri-conomy typewriter! Its amazing speed and electric ease-of-operation gives us the equivalent of 10 hours work from our 8-hour typists. We use a lot of carbon copies. The Electri-conomy turns out 15 and more *fully-readable* carbons—all with a single typing. What's more, typing accuracy

has improved. And our letters are far more uniform and distinctive."

► These same advantages of Electri-conomy typing are available to any company—large or small. Anyone desiring free demonstration of Electri-conomy typing, or free booklet "Take a Letter" (RE 8499) should write **Remington Rand Inc., Room 2480 315 Fourth Ave., New York 10, N. Y.**



### "SPEED COUNTS AT PIONEER,"

says Margaret Brown, executive secretary to Gen. Smith. "That's why I consider my Electri-conomy 'tops.' Its amazing speed and automatic features enable me to turn out better-looking letters *faster*, and more accurately. It's the perfect typewriter."

# Maintenance Bulletin Board



WESTERN Air Lines mobile test cell is an old school bus.



PAIR of test cells used by Oakland Aircraft Engine Service. Consulted in the design were Bendix Aviation, Alameda Naval Air Station, and UAL.

## New Mobile Test Cells Described

ENGINE test cells shown here are the newest of the mobile type. Stand built by Pan American World Airways affiliate Panair do Brasil, S.A. is designed to take a complete Wright 3350-BA-3 power package. Control cabin is equipped with a complete set of instruments including a Sperry portable engine analyzer. Mounted on an eight ton GMC truck, the stand was the suggestion of PAB engineer L. S. Dantas and cost approximately \$10,000.

In first photo Western Air Lines' latest addition is a transformed 1937 Reo school bus stripped down and converted into a modern test cell. Requiring some \$5,000 worth of materials and 1,200 man-hours of labor, the finished product cost Western only \$7,700. The cab interior, installed by mechanics Carl Ableiter and Richard Ferguson, includes a control panel almost identical to that in Western's Convair 240 fleet. Stand now tests 30 engines per month and is adaptable to the Pratt & Whitney R2800-CB16 engines being delivered on Western's Douglas DC-6B's starting next month. Design was supervised by Harrison Holzaphel, WAL's chief engineer.

## A Message to Engineers From Walter Tydon\*



"A secure future, exceptional opportunities for advancement, and a high starting salary await you at FAIRCHILD, if you are one of the men we are looking for. We have openings right now for qualified engineers and designers in all phases of aircraft manufacturing; we need top-notch men to help us in our long-range military program: turning out the famous C-119 for the U.S. Air Forces.

"FAIRCHILD provides paid vacations and liberal health and life insurance coverage. We work a 5-day, 40-hour week.

"If you feel you are one of the men we are looking for, write me. Your inquiry will be held in strictest confidence, of course."

*Walter Tydon*

\*Walter Tydon, widely known aviation engineer and aircraft designer and veteran of 25 years in aviation, is Chief Engineer of Fairchild's Aircraft Division.

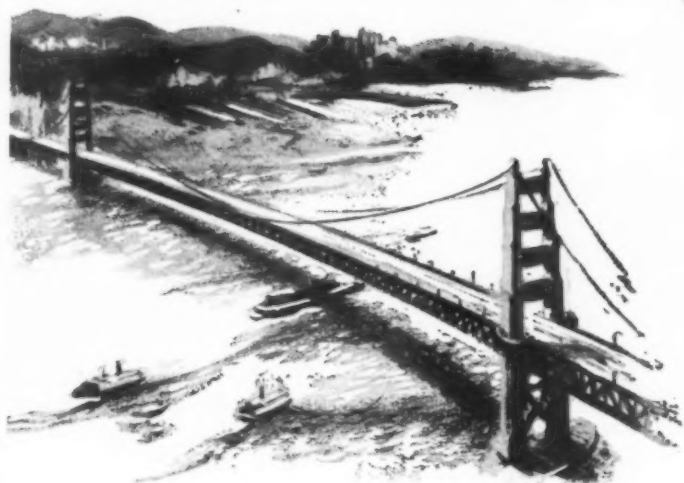
AN ENGINE AND AIRPLANE CORPORATION  
**FAIRCHILD** Aircraft Division  
HAGERSTOWN, MARYLAND



▲ PANAIR DO BRAZIL takes a complete Wright 3350-BA-3 package.

At left above, a pair of Oakland (Calif.) Aircraft Engine Service mobile stands recently completed, which cost over \$8,000 each and are capable of testing engines up to Pratt & Whitney R-2800 series.





## SHELL AIR QUIZ

### Question:

Can you guess the percentage of fare-paying passengers between San Francisco and Los Angeles who travel by air?

( ) 33%      ( ) 50%      ( ) 67%

### Answer:

Today two-thirds of all fare-paying passengers between San Francisco and Los Angeles travel by air.

### Question:

Which Aviation Fuel in the U. S. A. today flies the most passengers?

... the most air freight?

... the most air mail?

### Answer:

**SHELL AVIATION FUEL**



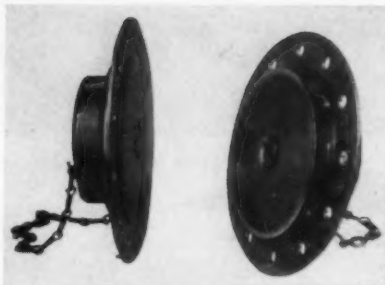
**SHELL OIL COMPANY**

50 WEST 50TH STREET, NEW YORK 20, N. Y.

100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA



**All-Aluminum** high pressure blower with a 450 cfm capacity is said to remove fumes, smoke, dust, and odors. The unit, manufactured by the Standard Electric Manufacturing Co., is made with a 5½ in. inlet and 3½ in. outlet. A Westinghouse 1/6 hp, 113 v., single-phase, a-c, 3,450 rpm motor supplies power. Also available in larger sizes with different speeds and current characteristics. Address: Standard Electric Manufacturing Co., West Berlin 12, N. J.



**Safety "Pop-Up"** requirement is featured in Eaton Manufacturing Company's Wright Field-approved Type II fuel filler cap, meeting all test specifications of MIL-C-7244. Of all steel construction, the cap and adapter assembly weight in at only 1 lb. 5 oz. Two revolutions of the engaging screw on the cap accomplish quick sealing engagement and the adapter can be shaped to fit various tank contours. Address: Eaton Manufacturing Co., Stamping Div., 18001 James Couzens Highway, Detroit 35, Mich.



**Lightweight,** seven-channel audio isolation system amplifier, produced by Flite-Tronics, Inc., provides reception of single or mixed simultaneous voice, marker, range, or other audio signals on either one or more loud speakers or earphones. Operating with either high or low dynamotor supply, the unit weighs about 3¼ lbs. and the receiver stands 7½ in. high, x 4½ in. wide, x 7½ in. deep with shockmount. Address: Flite-Tronics, Inc., 3303 Burton Ave., Burbank, Calif.



### A New Heavy Duty Radio

compass or automatic direction finder, designated model ADF-14, is being produced for civilian use by LearCal Division of Lear, Incorporated. Particularly suited for use in heavy multi-engine planes where resistance to extreme shock and vibration is essential, the new unit is a redesigned version of the ADF-12 Lear Orienter, used in private and executive aircraft. Transformers and metal-clad capacitors are hermetically sealed and all components are moisture and fungus proofed. Tuning meter and a beat frequency oscillator are provided. Frequency coverage encompasses three bands including 195 to 400 kc. 475 to 1050 kc, and 1000 to 1750 kc. Audipower output is 3 watts maximum, 1½ watts undistorted. Address: Lear, Incorporated, LearCal Division, Los Angeles, Calif.

# New Products



## Omni Test Set

Portable omni test unit announced by American Electroneering Corp. provides simulated omni phase, ILS, and tone ILS signals for laboratory or ramp test of airborne VHF and navigation radio gear. The set checks omni bearings continuously variable from 0° to 360°, and assures accuracy to 1°.

Unit also checks left-center-right and up-center-down on 90/150 localizer and glide slope. Self-contained regulated dual power supply utilizes either 105-130 v., a-c, 60 cycles, or 22-30 v., d-c, at 5 amps. Designated the ILS Signal Generator model AEC-200, the unit's dimensions are 11 in. x 18 in. x 12 in.

Address: American Electroneering Corp., 5025-29 Jefferson Blvd., Los Angeles, Calif.



## Hydraulic Packing

Precision hydraulic packing of the "V" type has been developed by Periflex,

Inc. for primary use as rod seal, but is adaptable as piston seals, depending on length.

Molded from a neoprene compound, "V" rings function automatically. The convex curve of the internal lip surface allows each ring to function independently and provides a lubricant reservoir. Rings are molded endlessly with no joint, taper overlap.

Address: Periflex, Inc., Hazel Park, Mich.

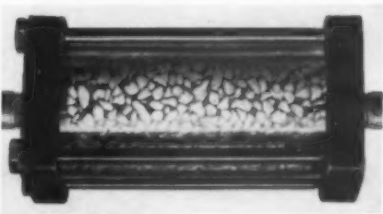


## Accelerometer

An accelerometer of thimble size has been developed by Endevco Corp. for use as a research instrument in measuring high frequency shock and vibration. The small size and weight, as low as 0.3 oz., are said to permit testing of small components under actual or simulated shock and vibration conditions and is suitable for missile, aircraft, and vibration table measurements.

The instrument gives a self-generated output of 5 millivolts per g with a range of 5 to 5,000 cps and is stable to within 5% over a temperature range of -20°C to +70°C.

Address: Endevco Corp., 180 E. California, Pasadena 1, Calif.



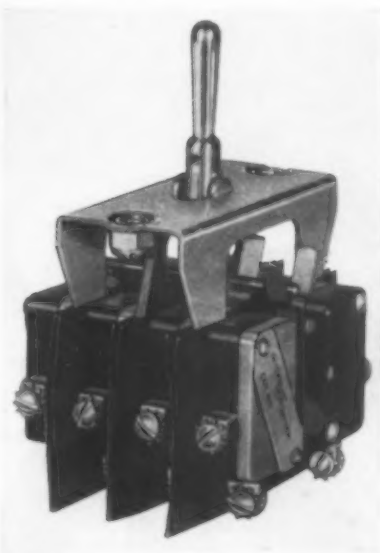
## Moisture Indicator

An air line moisture indicator, which gives visual indication of presence or absence of moisture in either air or gas lines, has been announced by King Engineering Corp.

Made up of a pyrex glass cylinder filled with moisture-sensitive blue granules, the unit has end plates tapped for 1/4 in. pipe. Granules stay blue to indicate that outlet air is dry and turn pink when moisture or water vapor is present.

Four tie rods protect the cylinder against damage and permit disassembly for recharging dry granules. Glass cylinder units are factory tested at 100 psi pressure. Dimensions are 5 in. long x 2-5/16 in. square with pressure drop at less than 1 in. of water at flow rate of 5 cfm.

Address: King Engineering Corp., Ann Arbor, Mich.



## Switch Assembly

Toggle switch assemblies of a new type of multiple circuit control, primarily for vibration resistant requirements of aircraft, are being produced by the Micro Division of Minneapolis-Honeywell Regulator Co.

Assemblies are available with switching elements, ranging from one to 10, double-throw, all operated by a single lever either detented in the center or self-returning to center.

Each switching element is listed at 10 amp. up to 250 volts a-c and will handle 30 volt d-c inductive loads at 10 amp. at sea level and 6 amp. at 50,000 ft. altitudes.

Address: Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.





## Designed for dependability

... tested (and re-tested) for precision

KOLLSMAN devises, develops and manufactures high-precision Aircraft Instruments and Controls • Miniature AC Motors for Indicating and Remote Control Applications • Optical Parts and Optical Devices • Radio Communications and Navigation Equipment

While our manufacturing divisions are engaged largely in defense pro-

duction, the Kollsman Instrument Corporation welcomes the opportunity to apply its research experience to the solution of problems in instrumentation and control.



### KOLLSMAN INSTRUMENT CORPORATION

ELMHURST, NEW YORK

SUBSIDIARY OF

GLENDALE, CALIFORNIA

Standard COIL PRODUCTS CO. INC.

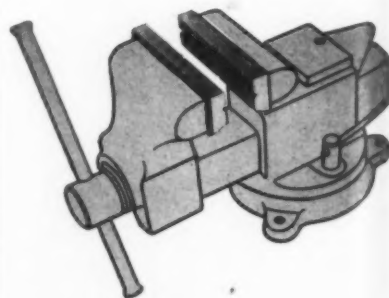


### Heliarc Welding Torch

New water-cooled Heliarc torch for inert gas-shield arc welding has a rated capacity for continuous duty of 300 amperes with either high-frequency stabilized alternating current or straight polarity direct current. Designated by Linde Air Products as model HW-10, the torch was designed for welding most commercial metals up to about  $\frac{1}{8}$  in. thick.

Electrodes can be changed in only a few seconds with no wrenches necessary, according to the manufacturer. Collets are available for 0.040-,  $\frac{1}{16}$ -,  $\frac{3}{32}$ -, and  $\frac{1}{8}$ -in. diam. electrodes. Two torch caps available allow use of either 3-in. or 7-in. electrodes. HW-10's metal gas cups are conduction-cooled through threaded connection to water jacket.

Address: Linde Air Products Co., 30 E. 42nd St., New York 17, N. Y.



### Soft Vise Jaws

Magne-Grip soft vise jaws designed with built-in permanent magnets for quick and easy installation have been placed on the market by the Magne-Grip Tool Co. Available in 3 in.,  $3\frac{1}{2}$  in., 4 in., and  $4\frac{1}{2}$  in. widths, the new jaw features two-way V-groove which locks the work in any position regardless of size or shape. The manufacturer claims that the alloy used guarantees against scratching or marring delicate finishes or highly polished metals.

Address: Magne-Grip Tool Co., 4900 W. Madison St., Chicago 44, Ill.



## **WORLD'S SPARK PLUG CAPITAL HOSTS AVIATION'S IGNITION EXPERTS**

Every year, the Champion Spark Plug Company invites the best informed men in the aviation world to Toledo for a three-day conference on spark plugs and ignition problems and their solutions. This year, 144 experts came from the four corners of the earth to attend.

The striking thing about these Champion meetings is that, while most of these men are in vigorous competition with each other 362

days a year, they meet here on common ground, believing that by helping each other, they can make flying safer and better for all. Much good for aviation has resulted.

Dependable spark plug and ignition performance is, of course, a prime requisite of all aircraft engines. We are proud to point to the singular achievement of having Champion Spark Plugs in use by every domestic trunk airline today!

**CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO**

**SPECIFY**

# **CHAMPIONS**

**AND FLY WITH CONFIDENCE**



*The RC26S and R37S-1 are the most widely used of Champion's many types of aircraft spark plugs.*

See more...do more...enjoy the best for less!

# FLY TWA to EUROPE in THRIFT SEASON and SAVE!

Hotel rates are more reasonable, your dollars buy more, and through March 31, you can save more than \$100 on a TWA round-trip ticket.

See your travel agent or call Trans World Airlines

ACROSS THE U.S. AND OVERSEAS... **FLY TWA**  
TRANS WORLD AIRLINES



## Pressure Switch

A piston-type multi-range pressure switch, made of aluminum die casting and stainless steel has been announced by the Bobruck Mfg. Co. Said to operate satisfactorily between  $-65^{\circ}\text{F}$  and  $250^{\circ}\text{F}$ , with calibrations not affected by acceleration, shock, vibration, or excessive pressure surges, the switch may be supplied in any one of 8 ranges from 125 to 7,500 psi. Weight is from 14 oz. to 16 oz. depending on pressure range and electrical connection.

Applicable uses include warning signals, sequencing circuits, and interlocking controls in medium and high pressure systems of hydraulic fluids, water, air, or gas.

Address: Bobrick Manufacturing Corp., 1839 Blake Ave., Los Angeles 39, Calif.

*versatile*  
Multi-channel  
telegraph A1 or  
telephone A3.

THAT'S GOOD TO ME ON POINT TO POINT

**STABLE**  
High stability (.003%) under  
normal operating  
conditions.

**RUGGED**  
Components  
conservatively  
rated. Completely  
tropicalized.

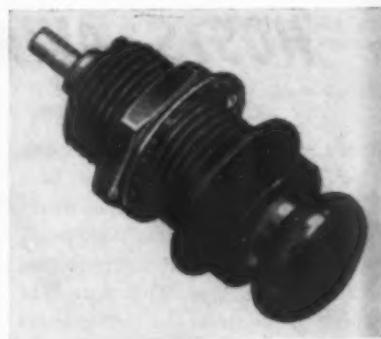
Model 446 transmitter operates on 4 crystal-controlled frequencies (plus 2 closely spaced frequencies) in the band 2.5-13.5 Mcs (1.6-2.5 Mcs available). Operates on one frequency at a time; channeling time 2 seconds. Carrier power 350 watts, A1 or A3 AM. Stability .003% using CR-7 (or HC-6U) crystals. Operates in ambient  $0^{\circ}$  to  $+45^{\circ}\text{C}$  using mercury rectifiers;  $-35^{\circ}$  to  $+45^{\circ}\text{C}$  using gas filled rectifiers. Power supply, 200-250 volts, 50/60 cycles, single phase. Conservatively rated, sturdily constructed. Complete technical data on request.

Here's the ideal general-purpose high-frequency transmitter! Model 446... 4-channel, 6-frequency, medium power, high stability. Suitable for point-to-point or ground-to-air communication. Can be remotely located from operating position. Co-axial fitting to accept frequency shift signals.

Consultants, designers and manufacturers of standard or special electronic, meteorological and communications equipment.

**AER-O-COM**  
Reg. U. S. Pat. Off.

**AERONAUTICAL COMMUNICATIONS EQUIPMENT, INC.**  
3090 Douglas Road, Miami 33, Florida



## Panel Lights

A new indicator light has been developed by Hetherington, Inc., for use on edge-lit AN-P-89 aircraft panels. Designated Type L2000, the light flange-mounts on backup plate and the socket extends through edge-lit panel. Plastic lens screws into light socket from front of panel.

Light is  $1\frac{1}{4}$  in. long overall and weighs less than  $\frac{1}{4}$  oz. Finished in black, it is of nickel plated brass. A 327 miniature lamp is used for 6, 12, or 28-volt operation and amber, blue, green, red, or white plastic lenses are available. A molded-in terminal prevents vibration.

Address: Hetherington, Inc., Sharon Hill, Pa.





CONVAIR 340



CANADAIR C-4



LOCKHEED  
CONSTELLATION



BOEING 377  
STRATOCRUISER



DOUGLAS DC-6B



SAAB SCANDIA



LOCKHEED 1049  
SUPER-CONSTELLATION



CONVAIR 340



SNCASE  
SE-2010 ARMAGNAC



DOUGLAS DC-3



AVRO JETLINER C-102



MARTIN 2-0-2A



MARTIN 4-0-4



DOUGLAS DC-6



CONVAIR  
TURBO-LINER



DOUGLAS DC-6A

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*transport* **AIRCRAFT YOU SEE...**

Fifty-five world airlines are daily utilizing Barber-Colman automatic controls to maintain passenger comfort and flight safety conditions.

In fifteen years Barber-Colman Controls have been used on nearly 100 major models of transport, executive, and military aircraft representing over 20 airframe manufacturers. Applications include: complete temperature control systems for cabin, cockpit, flight station, lounge, cargo, camera, and electronic compartments; temperature control of hot air and electrically heated windshields; temperature control of carburetor air, manifold air, and oil; wing and empennage de-icing controls; overheat controls; trim tab positioning and synchronization controls; flap unbalance detection controls; low voltage warning controls; nose wheel steering controls; rudder boost override controls; plus miscellaneous actuator, air valve, Micropositioner\*, and remote positioning applications.

IN MOST OF THE AIRCRAFT YOU SEE

**BARBER-COLMAN COMPANY**  
**CONTROL SYSTEMS ARE USED!**



\*Reg. U.S. Pat. Off.

**BARBER-COLMAN COMPANY**  
**1210 ROCK STREET, ROCKFORD, ILLINOIS**

Engineering Sales Offices: Los Angeles, Seattle, Chicago, Baltimore, New York, Montreal



### Pneumatic Air Drill

A new pneumatic air drill called the "DeKay," designed by Burklyn Company, features a replaceable air motor cartridge; four-point shielded bearing suspension; three hardened planet gears; four pressurized rotor blades; and lever throttle. Tool is capable of 21 ft.-oz. of torque using 12 cfm air.

Available models include pistol grip, straight and 90° right angle extension types of 1/4 in. cap. with speeds of 2,200 to 15,000 rpm and an 18,000 rpm precision grinder with collet chuck.

Address: Burklyn Co., 3429 Glendale Blvd., Los Angeles 39, Calif.



### D-C Generator

A miniature d-c generator adaptable as a rate device in servo systems has been introduced by Globe Industries, Inc.

A permanent-magnet unit, it can provide 0.7 volts per 100 rpm with starting torque of 0.15 oz.-in. or can produce 1.7 volts per 100 rpm with a starting torque of 0.5 oz.-in. Standard mounting provisions include synchro type and/or tapped holes,

and units are available with plain shaft extension or with pinion.

Address: Globe Industries, Inc., 125 Sunrise Pl., Dayton 7, O.

### Solenoids

Continuous duty solenoids designated model SD-128 for the pull type and SD-73 for the push type, have been placed on the market by the PSP Engineering Company.

Rated to pull four lbs. 0.062" at 24 volts d-c, the model SD-128 is shown at left, above. The model SD-73 valve is rated to push 18 pounds 0.025" at 24 volts d-c and features an adjustable stroke accurate to within plus or minus 0.002", according to the manufacturer.

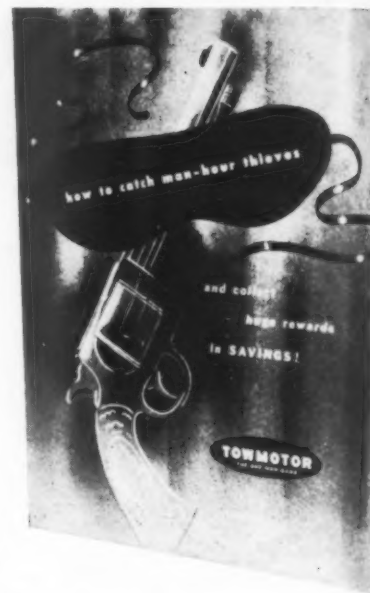
Address: PSP Engineering Co., South Gate, Calif.

### Technical Literature

**VOLATILE CORROSION INHIBITORS.** Technical Bulletin VT-1 serves as a basic text for VCI and "VPI" corrosion inhibitors and General Bulletin GB-1 deals directly with the Berlin and Jones Dry Vapor Pack-velopes, protection for steel and aluminum. Both booklets have been published by the Industrial Packaging Division, Berlin and Jones Co., Inc., 601 W. 26th St., New York 1, N. Y.

**MOTOR-GENERATOR SETS:** A four-page illustrated bulletin, F-2502, issued by the Reliance Electric & Engineering Co., 1088 Ivanhoe Rd., Cleveland, O., briefly describes the complete line of M-G sets of shunt or compound wound, from 1/4 to 1,000 kw., built by Reliance to provide power for constant voltage or adjustable voltage systems.

**AUTOMATIC VOLTAGE STABILIZERS.** Booklet GEA-5754 is a 12-page, two-color bulletin on automatic voltage stabilizers ranging from 15 to 5,000 volt amperes. Prepared by the General Electric Co., Schenectady 5, N. Y., the booklet contains photographs and diagrams to explain the operation.



**MATERIALS HANDLING.** "How to Catch Man-Hour Thieves," prepared by Towmotor Corporation, 1226 E. 152nd St., Cleveland 10, O., describes procedures for eliminating five major causes of heavy man-hour losses and the four basic plant operations in which such losses are most often sustained.

**INDUSTRIAL FANS.** Westinghouse Electric Corporation's Sturtevant Division is making available a new 12-page brochure which describes its 11 sizes of industrial fans and their standard wheels. The booklet is designated SA-6873 and can be obtained from Dept. T-415, 200 Readville St., Hyde Park Boston 36, Mass.

**PUSH-PULL CONTROLS:** "The Mechanical Push-Pull—A Remote Control for Industrial Use" is the title of a four-page folder being distributed by Simmonds Aerocessories, Inc., 105 White Plains Rd., Tarrytown, N. Y. Utilizing photos, drawings, and tables, it is aimed at helping the design engineer in planning new layouts where precision control and flexibility are needed.

**INDUSTRIAL FREEZERS.** A six-page, illustrated folder contains information on industrial freezers developed and manufactured by the Industrial Freezer Division, Webber Appliance Co., Inc., 2740 Madison Ave., Indianapolis 3, Ind. and includes line of temperature range testing units.

**WORLD'S PREMIER AIRPLANE FABRIC**

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**stronger**

**smoother**

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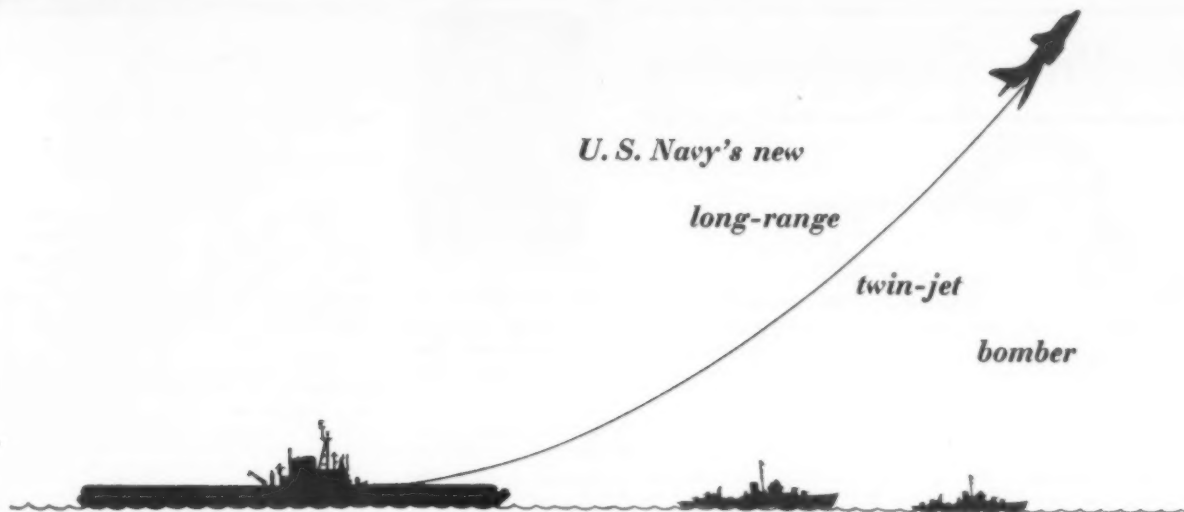
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U. S. Navy's new

long-range

twin-jet

bomber

## — the Douglas A3D

Built for the Navy, and now undergoing tests, the carrier-based Douglas A3D is designed to add new striking power to the Naval air arm.

Performance data on this plane is still secret, but no aircraft of comparable size—now in service or contemplated for

early service introduction—will be able to carry an equivalent bomb load as high or as fast as the Douglas A3D. Powered by twin jets, slung in pods below the wing outboard of the fuselage, A3D will be in the 600 to 700 mph class ... yet its planned range, from aircraft

carriers, will let it strike across wide expanses of water at enemy targets.

Selection of Douglas to build the A3D is another example of this company's aviation leadership. *Faster and further with a bigger payload* is the basic concept of Douglas design.



Depend on **DOUGLAS**



First in Aviation



# Airline Commentary

By Eric Bramley

WE HAVE RECEIVED numerous comments (favorable, we're happy to report) on our criticisms of certain airline operations in this column on September 29. The criticisms, you may remember, applied to ticketing, passenger handling procedures, and in-flight service. The airline people who deal with these problems freely admit some improvements are needed. We'll bring you up to date on what's happened since.

We were honored with an invitation to speak before the Air Traffic Conference's ticketing and baggage committee in New York. We discussed with these gentlemen substantially the same items covered in the column, with particular emphasis on the wide variations in industry check-in procedures, and the necessity for making it easier for passengers to get onto airplanes.

The committee thought there was enough substance in the remarks to name a subcommittee, which is to try to come up with a standard check-in and boarding procedure for the industry. Its members are Maury deGroff, Capital; J. K. Kilcar, Eastern, and R. C. F. ("Cubby") Baer, United. We wish them luck. We shall follow their activities with interest.

A bouquet to Northwest Airlines for the excellent in-flight service on its Stratocruisers. We made a round-trip to the Twin Cities recently to attend the NWA system-wide sales meeting, and the service was uniformly good. We were particularly impressed with the announcements made over the loudspeaker system. These are handled by a flight attendant, and were frequent and clear. It helped make the trip a pleasure.

A good stewardess story is told by Helen Marzolf, chief stewardess of Northwest Airlines. It happened about the time of the proposed Northwest-Capital merger, and also at the time Newark Airport was being closed. Things were some what confused at New York, what with transferring operations from Newark, and NWA had just found a new place to house its stewardesses who were remaining overnight in that city.

Seems that two of the girls from an incoming trip went to their room, and decided to order a couple of bottles of beer before retiring. The beer arrived, and the gals, partially undressed, sprawled on their beds, relaxing after the long trip. Suddenly the door opened and in walked a TWA pilot and co-pilot, just in from a flight and under the impression that this was their room. There was a large moment of silence as they eyed the two scantily-clad gals.

The silence was broken when one of the stewardesses suddenly blurted out: "Migawd—and I thought we were merging with

Airline executives always come in for their share of kidding from the boys down the line. The offices occupied by the president, vice president, etc.—the brass, in other words—are often referred to as "front office," "mahogany row," etc. We've now picked up another one—the "wind tunnel."

Amusing item from Rich Nelson's column in Pioneer Airlines' publication, *In Range*: "A passenger came to the ticket counter (in Dallas) holding a party of five to MAF (Midland-Odessa) on T45. He said that he had hired a three-piece band to serenade his girl friend when they got to MAF and one of the bandmen had a huge bass violin. He wouldn't hear of our checking it as common baggage, so the head man of the party bought a round-trip ticket to MAF for a bass viol. We strapped our 200-year-old passenger (it was an antique) into a seat, and advised the hostess that it was included in the passenger count and off they went to MAF. . . . They came back, bass viol and all, on T42. . . . You sure meet a lot of people at the ticket counter."



## People

### ADMINISTRATIVE

Edwin A. Speakman, vice president of the Research and Development Board, Department of Defense, for the past two years, has been named general manager of the Fairchild Guided Missiles Division, Wyandanch, New York.

John R. Markey has been promoted to assistant to the vice president of The Aero Equipment Corp., Bryan, Ohio. Prior to his recent appointment, Markey was aircraft sales manager for the corporation.

Donald G. Royer has been named assistant to the president of Slick Airways. In his new position, Royer's duties will include the negotiation of gasoline and freight drayage contracts in addition to administrative functions.

William C. Buffing, Jr. has been appointed treasurer of Simmonds Aerocor-sories, Inc., Tarrytown, N. Y.

Robert N. Huntoon, formerly assistant purchasing agent, promoted to director of procurement of Menasco Manufacturing Co. succeeding John Smith, resigned.

F. E. Hines, formerly corporation counsel for Douglas Aircraft Co., has been elected a vice president of the concern. In his new post, Hines will be given the responsibility for coordination and execution of financial planning and policy as determined by the president with the assistance of the finance committee.

Rear Adm. Willis E. Cleaves, USN (ret.) has joined Bendix Radio Division of Bendix Aviation Corp as staff assistant to E. K. Foster, division general manager and vice president.



Hines



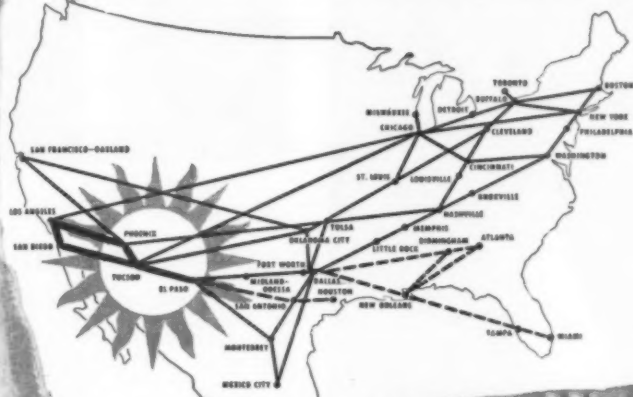
Cleaves

### OPERATIONS-MAINTENANCE

Leonard B. Allen has been appointed assistant plant manager of Solar Aircraft Company's San Diego plant. Allen's previous position, manager of quality control, has been filled by Erwin S. Barnhart.

# Are you a Sun Worshipper?

This year follow the sun by Flagship  
to California and the Arizona "Sun Country"



This year follow the summer to its winter headquarters in California and the fabulous Arizona "Sun Country." And don't miss San Diego—only a few miles from La Jolla Beach—only a few minutes from the Mexican border.

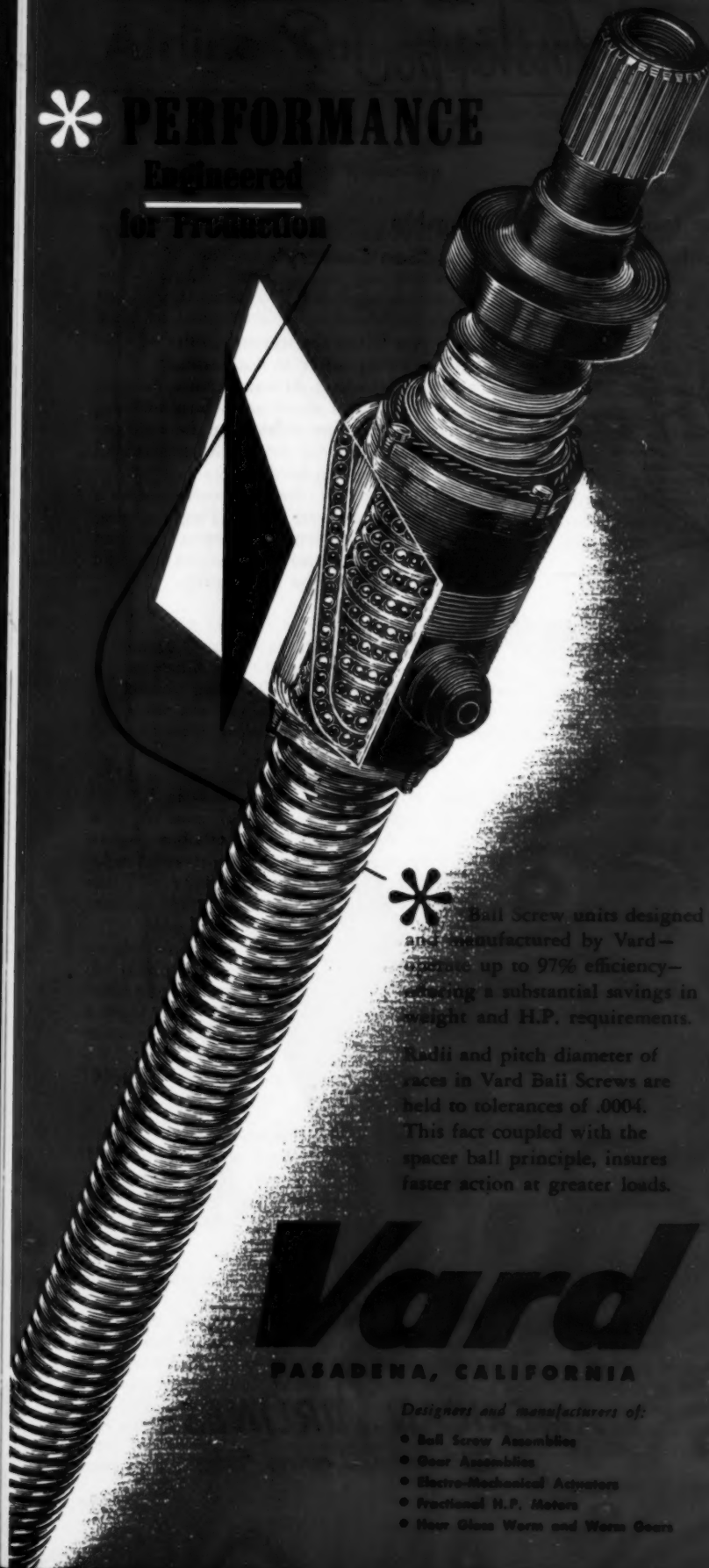
Remember, too, that the southern "Sunshine Route" of the Flagships is first choice with experienced sun worshippers. So take the best to the West—go by Flagship.

**AMERICAN AIRLINES INC.**  
*America's Leading Airline*



# PERFORMANCE

Engineered  
for Production



Ball Screw units designed and manufactured by Vard—operate up to 97% efficiency—offering a substantial savings in weight and H.P. requirements.

Radii and pitch diameter of races in Vard Ball Screws are held to tolerances of .0004. This fact coupled with the spacer ball principle, insures faster action at greater loads.

# Vard

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Designers and manufacturers of:

- Ball Screw Assemblies
- Gear Assemblies
- Electro-Mechanical Actuators
- Fractional H.P. Motors
- New Glass Worm and Worm Gears

Ray C. Johnson, formerly superintendent of maintenance for Continental Air Lines, has been named director of maintenance and engineering for Wisconsin Central Airlines.

Ian A. Gray is the new director of maintenance and engineering for Canadian Pacific Air Lines. Gray, previously an assistant to the president, will make his headquarters in Vancouver.



Martinez



Gray

## TRAFFIC & SALES

Mario Martinez, a 24 year employee of Pan American World Airways, has been appointed traffic and sales manager of the line's Latin American Division. He succeeds Porter Norris, who returns to PAA's U. S. sales organization in an executive capacity.

Laurence C. Tombs of Montreal, Canada, has been elected president of the American Society of Travel Agents. Tombs, whose term begins January 1, succeeds A. L. Simmons of New York. R. T. Belchambers of Miami was elected vice president.

Robert O'Skea, Philippine Air Lines' district sales manager in Honolulu for the past four years, has been named to the post of international traffic and sales coordinator for the airline.

Sydney H. Webster is the new sales manager of Aviation Engineering Corporation, Woodbridge, Long Island. Before joining AVIEN, Webster was associated with Bendix Aviation Corporation.

L. E. Burtscagli, Pan American World Airways, Atlantic Division, appointed superintendent of passenger sales, and W. F. Hesse, appointed superintendent of passenger traffic, in Long Island City.

## ENGINEERING

Dwain E. Fritz has been named to fill the newly created posts of director of engineering and assistant to the president of Jack & Heintz, Inc. Fritz, in turn, announces the promotion of Ralph J. Eschborn to the post of executive engineering manager, and the addition of Joseph E. Mulheim to the Jack & Heintz staff as chief project engineer and acting chief engineer.

A. E. Abel has been appointed to the position of assistant director of engineering and research for the Bendix Radio Division of Bendix Aviation Corp.





## HONOR ROLL

The following employees in the aviation industry recently completed 20 years or more of service in the industry with the same company.

• **Elmer W. Krueger**, The Cleveland Pneumatic Tool Co. Vice president, Cleveland. 30 years.

• **J. Myers**, Trans World Airlines. Foreman of line maintenance, Los Angeles. 25 years.

• **L. W. Goss**, Trans World Airlines. Properties director, Los Angeles. 25 years.

• **J. P. Cislser**, United Air Lines. Industrial engineering manager, Denver. 20 years.

• **K. W. Cook**, United Air Lines. Station ground services manager, Medford. 20 years.

• **J. H. Bell**, Trans World Airlines. Flight dispatch superintendent-central region, Kansas City. 20 years.

• **L. D. Munger**, Trans World Airlines. Supervisor of flying, Kansas City. 20 years.

United Air Lines personnel recently completing 25 years of service are as follows, by stations:

• **NEW YORK**—P. S. Elsasser, chief of storekeeping; W. H. Maxwell, station ground services manager; J. J. McVeigh, crew scheduler; W. S. Tuttle, flight dispatcher; F. W. Tanner, supervisor-mechanical service; H. M. Anderson, chief flight dispatcher; and F. R. McCordell, line mechanic.

• **CLEVELAND**—W. F. Schmitt and R. J. Grosz, both dispatch representatives; M. G. Rundle, lead line mechanic; and Gust Schmidt, senior line mechanic.

• **CHICAGO**—E. J. Burda, accountant; Orian E. Kline, lead line mechanic; H. L. Kinsey, line aircraft inspector; H. L. Knoop, manager of flight operations; A. Z. Gruitch, chief flight dispatcher; Edward Nelson, lead B&W mechanic; and E. A. Keogh, staff superintendent-purchasing.

• **SAN FRANCISCO**—W. D. Williams, manager of flight operations; J. K. Keller, lead line mechanic; R. A. Prince, foreman; W. J. Addems, captain; and A. W. Van Buren, lead shop mechanic.

• **DENVER**—E. A. Bennett, Sr., technical staff assistant.

• **ROCK SPRINGS**—R. J. Aho, senior station agent.

The following employees recently completed 25 years of service with United Aircraft Corp., Hamilton Standard Division, East Windsor, Conn.:

Adam C. Wols, purchasing agent and traffic manager; Carl A. Krause, production superintendent; Harold Solum, second shift superintendent; Maxwell J. Pounder, assistant production superintendent; Sigmund A. Czarnicki, master mechanic; Adolph Hartig, general foreman; William Schwoerer, foreman; Arthur J. Druce, set-up man; John Keller, foreman; Carl Balasz, set-up man; Stanley Nowak, set-up man; Alex Martin, general foreman; George Churina, set-up man; Walter C. Lehmann, gear shaper operator; and Daniel E. Ostien, Sr., foreman.

# Foul Weather Friend!

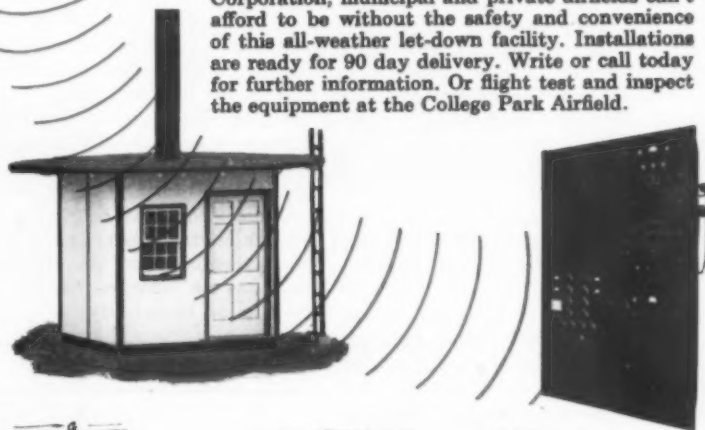
No matter how marginal the weather, planes land safely on fields equipped with TVOR. This new let-down facility keeps your airport operating through rain, low ceilings and restrictions to visibility—extends its usefulness by 40%. TVOR provides all the security of VOR—at less than one-fourth the cost.

TVOR was developed to meet the needs of small and medium-sized airports. Its single installation provides a terminal omnidirectional radio range that can be installed in an inexpensive shelter directly on the airport.

Any plane with standard VOR instrumentation can make positive approaches to a TVOR equipped field. On course indication is steady. Over the station cone is definite. Fifty watts of antenna power provides ample coverage for omnirange navigation. TVOR is built by the Maryland Electronic Manufacturing Corporation, producers of similar installations for the CAA.

The cost of a complete TVOR installation is less than a quarter that of VOR. Yet the components are of the same high quality and the system is given the same rugged tests!

Corporation, municipal and private airfields can't afford to be without the safety and convenience of this all-weather let-down facility. Installations are ready for 90 day delivery. Write or call today for further information. Or flight test and inspect the equipment at the College Park Airfield.



TVOR changes fair-weather to all-weather airline service.



TVOR guides corporation aircraft safely to their home fields, in spite of low ceilings.



TVOR works with standard instrumentation. Private planes "home" on their own airfield.

**MARYLAND ELECTRONIC MANUFACTURING CORPORATION**  
COLLEGE PARK 26, MARYLAND



## Wiggins Too Costly: No Renewal

Civil Aeronautics Board late last month voted 3-2 against renewing the local service airline certificate of New England-based E. W. Wiggins Airways. It marked the third time in the seven-year history of the Board's local service program that a carrier has been denied renewal after an initial operating trial.

Donald W. Nyrop (who resigned as Chairman effective October 31), Oswald Ryan (who assumed the Chairmanship on November 1) and Member Chan Gurney wrote the majority opinion in which it found Wiggins' operations too costly to the Government in proportion to the benefits which flowed from it.

Members Josh Lee and Joseph P. Adams dissented generally, asserting that a sufficient trial had not been given for development of local services in New England. They claimed the initial routes granted Wiggins were "too weak."

To make up for the elimination of Wiggins, CAB extended Mohawk Airlines (formerly Robinson) east from Albany, N. Y., to Boston via Pittsfield,

Springfield, Westfield and Worcester. Further, they authorized TWA to abandon service at Worcester and granted Northeast Airlines the following:

- Addition of Pittsfield, Mass., as a new intermediate point.
- Extension of segment 5 to Burlington, Vt., via White River Junction and Montpelier-Barre, Vt.
- Addition of Laconia, N. H., as an intermediate between Concord, N. H., and White River Junction.
- Addition of Lawrence, Mass., as an intermediate point between Boston and Manchester, N. H.

The cancellation of Wiggins' certificate takes effect January 1, 1952. Carrier can still appeal to CAB for reconsideration and, if unsuccessful, can take the matter to court if it desires.

The route award to Robinson and the TWA abandonment at Worcester, likewise become effective January 1, but the Northeast changes went into effect at the time of the Board decision in late October.

## Eastern and National Stage Tug of War

Eastern Air Lines and National Airlines were pulling no punches as hearings commenced recently in the CAB proceeding to determine which of the two will acquire Colonial Airlines.

Eastern has an agreement with Colonial; National is fighting on the strength of a CAB-instituted investigation of a possible National-Colonial merger.

Fireworks started several days before hearings opened when National asked CAB to investigate Eastern's "stockholdings" in Colonial which it charged amounted to unlawful control. Primarily, it referred to the purchase by EAL director Laurance Rockefeller of 26,200 shares of Colonial stock from former Colonial president Sigmund Janas, Sr.

This deal, plus others, National charged, gave Eastern more control over Colonial than Janas ever had.

On the strength of these charges, CAB Examiner Edward T. Stodola, at the opening of hearings, said CAB was reserving decision on National's petition and that hearings would be recessed after presentations of civic witnesses. This means an indefinite delay in the affirmative cases of the would-be merging partners.

But Eastern retaliated terming the National document a "reckless, scurrilous, unsupported and unverified petition." It denied the "control" charges and urged CAB to take "disciplinary action" against National, meanwhile striking the document from the records.

Within a matter of hours after the Eastern document was filed, Stodola ruled that there would be no interruption of hearings as originally announced. This was seen as an initial Eastern victory. But Stodola's ruling was procedural and left for CAB the final say on whether National is entitled to an investigation.

### CAB CALENDAR

Nov. 10—Hearing resumed in Large Irregular Air Carrier Investigation (Miami session). Allison Hotel, Miami Beach, Fla. (Docket 5132 et al.)

Nov. 13—Hearing in Caribbean American Lines, Inc. Enforcement Proceeding. Washington, D. C. (Docket 5657.)

Dec. 10—Hearing in Trans-Atlantic Cargo Case (Seaboard, Transocean, et al.). Washington, D. C. Docket 3041 et al.)

Jan. 6—Hearing in Reopened Southern Service to the West Case. Washington, D. C. (Docket 1102 et al.)

Jan. 6—Hearing in United Air Lines Restriction Case. Seattle, Washington. (Docket 2190.)

### AS OF NOW . . .

The C&S-Delta Merger Case was ripe for Examiner William F. Cusick's report at press-time, but a final decision on the merger, which must be approved by the President, is hardly likely before the first of the new year. Unlike the Braniff/Mid-Continent merger which saw MCA's wholly domestic routes transferred to Braniff, the C&S-Delta case is complicated by the transfer of C&S' international routes to a domestic line.

The big battle over southern interchange rights in the Reopened Southern Service to the West Case will not go to hearing until January 6, contrary to an earlier CAB announcement that hearings would begin December 10. Pitting the Eastern-Braniff-TWA interchange forces against the National-Delta-American combine, the case came back to CAB from the Court of Appeals for the District of Columbia last June. Promises of expeditious handling at that time have grown thin in the wake of complicated legal matters and a reported lessening of interest on the part of some CAB members.

CAB has ruled that the Braniff Airways Final Mail Rate Case will be the forum for considering the Post Office Department's proposal to establish an earnings equalization reserve for certificated airlines. Braniff had opposed use of its case for trying the plan which has industry-wide implications. But CAB said it will hold hearings to determine (1) if it is legally empowered to establish such reserve plans as a matter of law, and (2) if it should establish such plans as a matter of policy. Outcome could be establishment of reserves for excess earnings to off-set future mail pay needs.

### RECENT CAB DECISIONS

• Trans-Air Hawaii authorized to acquire assets of Hawaiian School of Aeronautics and granted exemption from provisions of Act which would require public hearings.

• Wisconsin Central Airlines granted exemption to overfly Eau Claire, Wisc., on flight between Winona and Twin Cities and between Wausau and Twin Cities, provided one daily flight at Eau Claire and Winona over the respective routes.

• National Airlines' proposed new coach fares between New York and Norfolk, and between Miami, Tampa and New Orleans, suspended pending investigation.

# in south america —

## *Braniff does make the difference!*

That's what Mr. Louis Bromfield says. And the celebrated author and farmer's no stay-at-home, either. He's covered miles Marco Polo didn't know about. Last January he added a few thousand more when he flew away from his Malabar Farm on one of our Farm Friendship Tours.

With other country gentlemen from the U. S. A., this gifted man of letters was taken into capable Braniff hands. Our "on the spot" managers gave these folks the Latin American world with a lasso around it. They showed them estancias (or ranches) in the Argentine, Indian-farmed haciendas in Peru, experimental farms and agricultural schools in Panama and Brazil. They were literally "carried away."

To sum up Mr. Bromfield's enthusiasm, his plans are definite to do South America again. How? He'll fly Braniff, of course!



*Louis Bromfield*

noted author and agriculturist.

Mr. Bromfield gets a "bon voyage" from Bill Beattie, Braniff's agency and Interline manager.



# it's BRANIFF

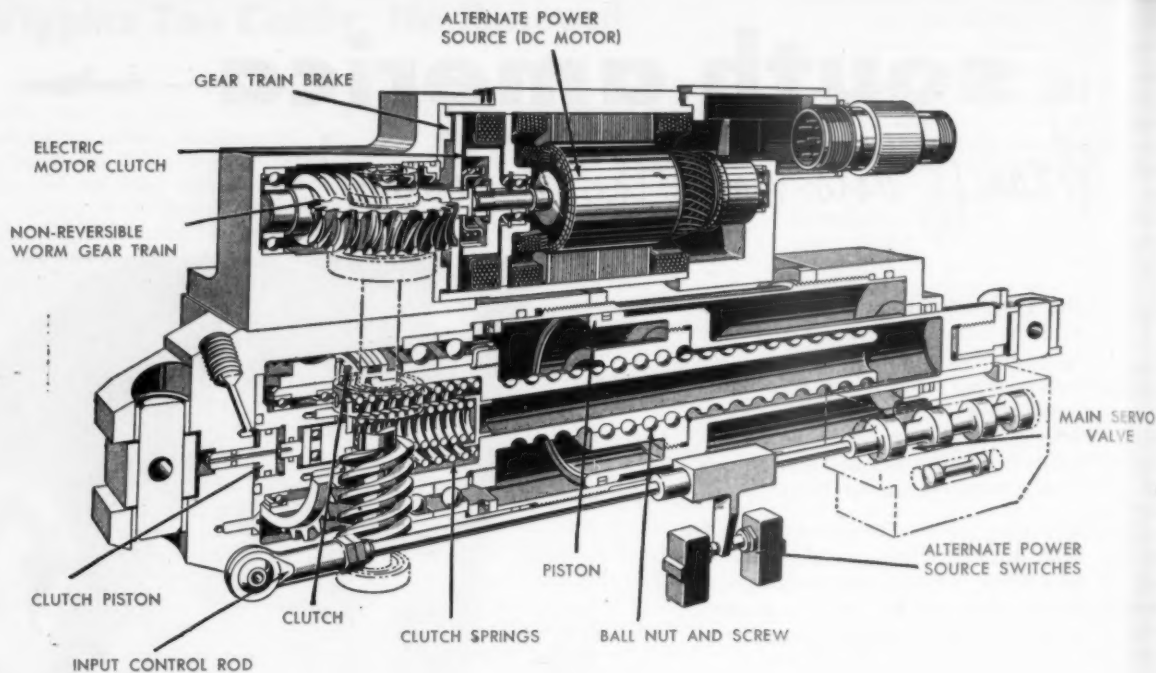
INTERNATIONAL AIRWAYS

Love Field • Dallas, Texas

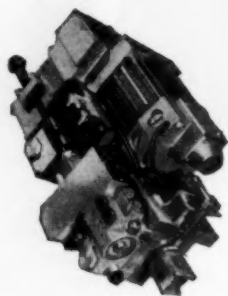


Ω OMEGA Official Braniff Timepiece

NOVEMBER 10, 1952



## GET NEW DESIGN FREEDOM WITH AEROPRODUCTS SELF-LOCKING ACTUATORS



### APPLICATIONS

- Stabilizer Control
- Jet Engine Variable Nozzle
- Dive Brakes
- Variable Wing Incidence
- Flap Actuation
- Aileron Control
- Variable Wing Sweep
- Bomb Bay Door
- Cargo Door
- Landing Gear
- Turret Control
- Canopy and Seat Control

Instantaneous and positive in action, the new Aeroproducts actuator automatically locks itself in any position. This self-locking feature gives absolute control of any movable part, eliminating design limitations that have heretofore prevented development of many aeronautical advancements.

Aeroproducts actuators may be coupled in series or tandem to give identical, simultaneous control of more than one movable part. The basic design is infi-

nitely variable for hydraulic, pneumatic, electric or manual operation, or any combination of these.

Designs are already in use for variable control surfaces and jet engines. Others are in process for guided missile and various commercial applications.

Actuators now in production are for  
Republic F84F Flyable Tail  
McDonnell F3H Horizontal Stabilizer  
Others unannounced



*Building for today  
Designing for tomorrow*



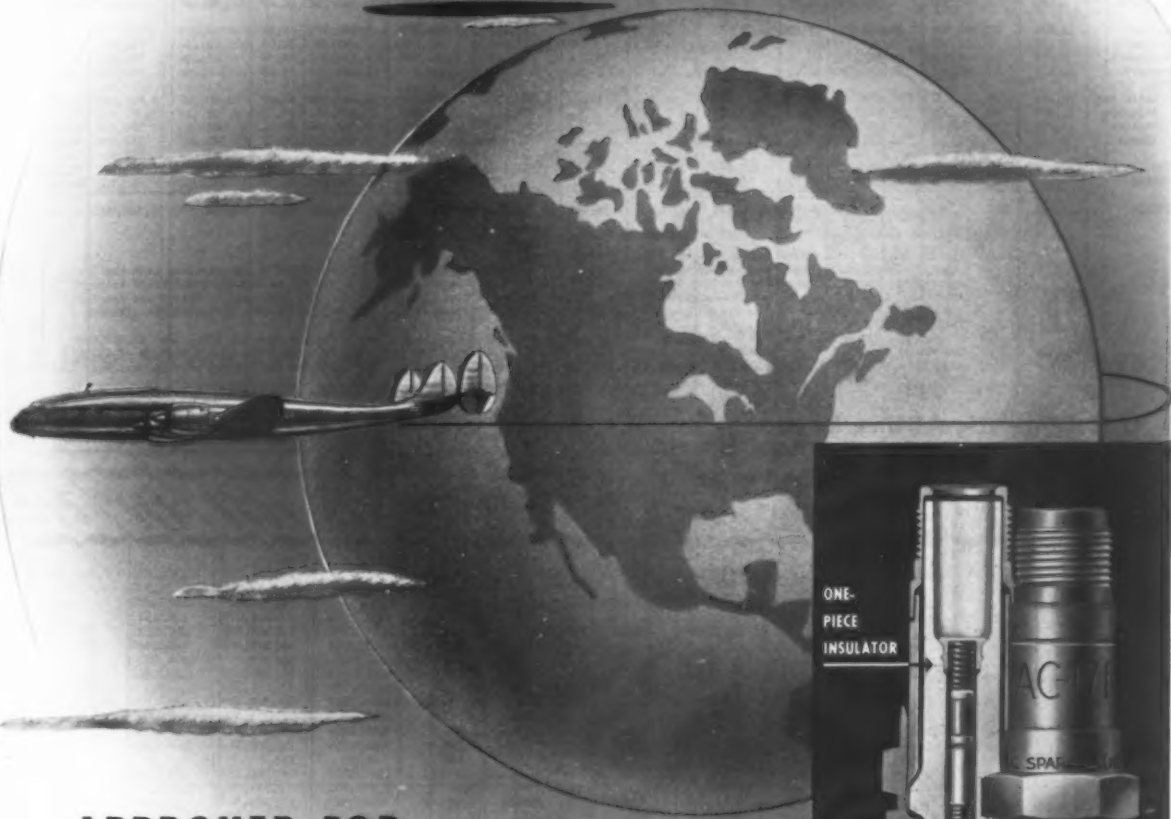
# Aeroproducts

ALLISON DIVISION • GENERAL MOTORS CORPORATION • DAYTON, OHIO

AMERICAN AVIATION



# The New AC 171



## APPROVED FOR

<b>R-1820</b>	<b>R-2800</b>
<b>R-1830</b>	<b>R-3350</b>
<b>R-2000</b>	<b>R-4360</b>



The new AC-171 is today's sensation in aircraft spark plugs. The record-breaking order awarded to AC by the Armed Forces, and the engine builders' approval for the engines listed above, are proof of that.

The AC-171 has many high-quality features—including one-piece insulator, which eliminates flashover and cleaning difficulties.

Easy to service—rugged and long-lived—economical and reliable—the new AC-171 spark plug is the outstanding buy for airlines.



AC SPARK PLUG DIVISION  
GENERAL MOTORS CORPORATION

NOVEMBER 10, 1952

# Summary of U.S. International Airline Traffic for July, 1952

AIRLINES	REVENUE	PASSENGERS	REVENUE	AVAILABLE	PASSENGER	U. S. MAIL	FOREIGN MAIL	EXPRESS	FREIGHT	TOTAL	AVAILABLE	% AVAILABLE	REVENUE	SCHEDULED	% CTR. USED
			MILES	SEAT	LOAD FACTOR	TON-MILES *	TON-MILES	TON-MILES	TON-MILES		TON-MILES			MILES	LIBR
American	9,639	7,251,000	12,663,000	57.26	14,144	4,233	415	178,408	958,577	1,751,850	54.72	246,881	247,785	99.64	
Braniff	3,330	7,797,000	15,612,000	49.94	31,385	10,595	.....	87,293	1,001,094	2,212,266	45.25	361,649	366,288	98.73	
C & S	2,611	3,450,000	6,638,000	51.97	5,007	716	.....	91,277	451,825	919,444	49.14	143,296	143,902	99.58	
Colonial	4,140	3,257,000	4,550,000	71.58	780	329	.....	6,601	351,882	544,088	64.55	89,438	89,918	100.00	
Eastern	12,224	17,860,000	23,658,000	75.49	32,583	.....	.....	27,435	1,886,078	3,779,576	49.90	392,018	.....	.....	
National	9,426	2,429,000	3,710,000	65.47	1,267	.....	.....	3,872	265,506	491,265	54.05	65,446	64,976	100.00	
Northwest	8,338	14,118,000	23,529,000	60.00	116,133	31,040	29,726	706,089	2,386,900	3,531,803	67.58	545,108	599,949	89.41	
Panagra	10,107	10,568,000	19,501,000	54.19	29,937	26,578	.....	208,770	1,426,217	2,681,772	53.18	501,264	497,939	98.47	
FAA	76,154	72,234,000	112,929,000	63.96	227,454	54,966	.....	1,857,356	8,896,528	14,427,835	61.66	2,429,309	1,874,421	97.68	
Latin Amer.	44,563	69,363,000	109,899,000	65.50	463,448	121,323	.....	1,001,042	9,118,013	13,609,694	67.03	1,772,439	1,782,532	97.03	
Atlantic	10,171	34,927,000	45,488,000	76.78	322,516	82,151	.....	705,508	4,897,291	7,744,008	63.24	924,095	900,826	100.00	
Pacific	8,534	9,076,000	16,190,000	56.06	44,424	.....	.....	613,203	1,597,826	2,631,537	60.72	382,203	310,146	99.84	
Alaska	19,141	47,756,000	64,904,000	73.58	317,560	138,311	.....	551,304	6,095,079	8,843,896	68.92	1,400,592	1,399,479	99.26	
United	5,444	13,477,000	14,440,000	93.33	65,833	.....	.....	75,050	1,553,165	1,894,870	81.97	272,340	262,740	97.20	
TOTALS	223,822	313,563,000	469,711,000	66.76	1,672,471	470,242	34,013	6,124,378	40,885,287	65,057,904	62.84	9,532,058	8,520,901	97.75	

\* Includes air parcel post.

\*\* Not available.

NOTE: 1. Figures include both scheduled and non-scheduled operations.  
2. Data in above tabulations were compiled by American Aviation Publications from monthly reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB in accordance with CAB filing procedures.  
3. Chicago and Southern Air Lines' total international available seat miles for the six months ending June 30, 1952, were 38,167,000 instead of 34,827,000 as reported on summary sheet for that period, changing the passenger load factor to 69.1% instead of 53.5% as shown. Correction raises combined total available seat miles for all carriers to 2,278,634,000 and reduces average passenger load factor to 61.84%.

## U.S. Domestic Airline Revenues and Expenses for Quarter Ending June 30, 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE TAXES
American	46,318,625	40,375,942	1,860,853	902,951	2,274,141	433,796	182,667	38,363,053	19,653,232	18,701,821	7,955,572
Braniff	4,694,811	4,239,414	202,343	86,319	126,045	33,355	2,802	4,292,975	2,157,666	2,135,309	1,011,816
Capital	10,277,749	9,340,349	229,546	247,611	220,937	51,426	50,655	9,242,229	4,352,429	4,889,800	1,035,520
Caribair	215,883	186,965	40,537	...	9,304	1,533	3,377	242,991	101,078	141,913	5,892
C & S	3,584,418	3,227,030	167,700	75,727	75,520	30,021	3,236,139	1,548,208	1,287,333	2,261,275	348,279
Colonial	1,389,309	1,035,598	266,629	11,494	14,266	5,194	2,410	1,471,552	620,008	851,544	-190,743
Continental	2,558,126	2,096,364	263,157	20,171	52,223	14,946	77,342	2,415,565	1,232,625	1,182,940	142,561
Delta	6,938,042	6,218,827	264,698	93,830	223,824	78,578	1,745	6,168,059	3,053,103	3,114,956	769,983
Eastern	27,597,165	25,700,679	597,072	373,446	302,865	411,846	22,361	26,900,647	13,797,215	11,103,432	2,696,518
Hawaiian	1,061,938	766,078	139,480	29,752	102,454	14,953	4,934	999,360	383,481	615,879	62,578
MCA*	2,733,799	2,122,450	488,768	29,211	41,423	17,207	24,751	2,459,794	1,185,397	1,274,397	274,005
National	6,264,631	4,133,383	176,758	51,722	292,138	105,524	11,525	5,641,758	2,593,110	3,058,648	622,302
Northeast	1,669,239	1,299,797	295,831	24,283	28,660	6,979	658	1,764,628	766,458	998,170	-95,389
Northwest	8,943,693	8,373,320	7,522	149,910	240,838	58,036	29,987	8,985,551	4,551,034	4,434,517	6,142
Trans Pacific	457,402	307,235	50,827	2,151	8,537	3,969	76,659	428,928	168,318	260,610	28,474
TWA	27,821,722	25,018,069	1,194,476	565,456	685,721	210,207	37,222	23,080,825	11,822,079	11,258,746	4,740,397
United	37,149,820	31,817,403	2,228,962	346,317	1,277,032	314,787	334,202	29,429,643	13,477,761	15,951,882	7,720,177
Western**	4,553,944	4,133,820	164,619	60,546	78,292	25,643	3,391	3,733,853	1,738,131	1,995,722	320,091
TOTALS	194,160,366	171,325,723	8,564,828	3,580,897	6,053,275	1,818,000	367,124	166,797,550	83,196,329	83,561,221	27,403,316

\* Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.  
\*\* Figures include operations of former subsidiary, Inland Air Lines, Inc., which company was dissolved and operations merged with TWA on April 9, 1952.

## U.S. Domestic Airline Revenues and Expenses for 6 Mos. from Jan.-June, 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE TAXES
American	84,217,069	72,442,455	3,766,965	1,850,401	4,347,662	802,744	353,548	74,070,731	37,599,710	36,471,021	10,146,338
Braniff	9,096,303	8,135,962	415,143	169,513	239,032	71,716	8,881	8,495,300	4,219,933	4,275,267	601,103
Capital	18,063,786	16,006,384	504,402	495,663	433,791	99,277	26,853	18,226,239	9,681,909	9,544,330	-162,453
Caribair	542,607	425,753	72,252	17,308	4,666	1,154	511,606	212,329	299,277	31,001	...
C & S	6,697,972	5,842,627	485,166	151,443	140,806	51,494	2,049	6,247,727	3,263,072	3,263,072	450,245
Colonial	2,379,516	1,818,736	446,208	24,139	25,079	9,805	4,636	2,747,580	1,140,604	1,606,976	-374,064
Continental	4,900,252	3,874,836	660,004	41,152	100,542	28,821	141,669	4,661,280	2,429,966	2,231,314	238,972
Delta	14,463,288	12,946,534	510,421	196,183	440,217	184,771	7,850	12,322,115	6,195,083	6,127,032	2,141,173
Eastern	55,604,481	51,783,498	1,277,228	728,800	631,239	906,034	92,870	49,185,388	27,246,550	21,938,838	6,419,093
Hawaiian	2,004,545	1,434,954	287,904	34,428	184,350	26,875	7,758	1,960,793	756,631	1,204,162	37,752
MCA*	4,971,108	3,863,127	876,556	51,608	77,334	31,218	54,060	4,794,459	2,260,287	2,533,472	176,649
National	14,579,624	13,012,424	380,649	120,170	584,594	267,076	33,689	11,848,309	5,435,141	6,413,168	2,731,315
Northeast	2,870,594	2,142,904	592,913	46,556	49,008	11,643	1,961	3,421,258	1,486,524	1,934,734	-550,664
Northwest	15,976,226	14,156,279	703,235	308,981	440,925	98,771	14,080	17,465,015	8,903,924	8,561,091	-1,488,789
Trans Pacific	836,452	571,453	120,833	5,173	15,961	6,011	103,903	828,982	314,721	514,261	7,470
TWA	50,273,979	44,253,235	2,527,389	1,171,466	1,466,260	386,039	53,184	45,546,182	23,465,979	22,080,209	4,727,797
United	66,122,781	55,042,894	4,602,310	1,650,681	2,512,884	513,079	608,484	55,701,283	25,130,887	30,570,396	10,421,498
Western**	8,421,702	7,577,536	350,441	112,081	138,826	49,506	3,584	7,282,533	3,390,882	3,872,151	1,259,169
TOTALS	362,016,285	315,691,581	18,580,015	7,178,538	11,845,708	3,549,596	2,768,213	325,302,680	161,718,350	163,584,330	36,713,605

\* Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.  
\*\* Figures include operations of former subsidiary, Inland Air Lines, Inc., which company was dissolved and operations merged with TWA on April 9, 1952.

# Summary of Local Service Airline Traffic for July, 1952

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON MILES	EXPRESS TON MILES	FREIGHT TON MILES	TOTAL TON MILES	REV. TRAFFIC TON MILES	AVAILABLE TON MILES	% AVAILABLE TON MILES USED	REVENUE PLANE MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
All Amer.	19,773	2,901,000	6,417,000	45.21	5,894	7,726	...	297,550	733,418	40.57	305,591	294,192	98.83	
Boonsa	3,585	841,000	2,261,000	37.20	1,219	866	2,335	84,661	234,386	35.41	97,687	98,074	99.05	
Central	4,217	588,000	3,243,000	18.13	3,167	796	1,885	61,789	370,634	16.67	154,431	155,496	99.13	
Empire	4,151	804,000	2,260,000	35.58	1,568	1,425	...	77,602	245,933	31.47	107,606	105,834	99.85	
Frontier	11,910	3,125,000	8,533,000	36.62	9,719	35,325	364,028	431,161	814,609	44.69	409,994	404,054	99.51	
Lake Central	3,064	497,000	1,834,000	27.10	967	3,436	...	49,218	209,518	23.49	92,630	93,124	98.28	
Figures not yet available. Data will be reported later.														
MCA	9,389	1,612,000	3,875,000	41.60	2,998	4,050	2,423	153,924	415,710	37.03	184,543	182,007	99.09	
Hobbs *	7,468	1,251,000	5,762,000	21.71	3,882	8,511	...	129,349	505,864	25.57	230,462	232,934	98.70	
Quark	20,428	4,548,000	8,574,000	53.04	6,665	6,156	10,687	458,820	979,891	46.82	408,288	408,397	99.55	
Piedmont	15,490	4,215,000	11,447,000	36.82	9,762	3,424	15,462	431,161	1,112,895	38.74	317,970	327,941	96.85	
Pioneer	10,248	1,709,000	6,329,000	27.00	6,391	6,085	...	175,799	685,797	25.63	301,383	302,994	99.45	
Southwest	15,173	2,895,000	5,084,000	56.94	5,654	3,486	7,627	292,798	581,016	50.39	242,090	240,827	99.02	
Trans-Texas	6,458	1,509,000	4,910,000	30.73	5,069	2,176	6,126	157,259	561,103	28.03	233,793	237,030	99.79	
West Coast	9,383	1,434,000	2,757,000	52.01	936	869	4,049	133,153	282,790	47.09	133,072	130,045	97.80	
Wiggins	401	39,000	163,000	23.93	126	186	...	3,868	17,393	22.24	43,018	48,066	84.84	
Wis. Central	15,957	2,753,000	6,073,000	45.33	6,389	10,864	...	281,783	694,157	40.59	289,232	303,521	94.98	
TOTALS	157,095	30,721,000	79,522,000	38.63	71,863	65,575	85,919	3,152,522	8,445,114	37.33	3,551,790	3,554,536	98.42	
Helicopter Mail Service														
HAS	...	...	...	...	2,443	...	...	2,443	6,264	39.00	30,540	30,569	99.90	
Los Angeles	...	...	...	...	3,114	...	...	3,114	7,960	39.22	19,524	23,160	84.37	
NOTE: Above figures include both scheduled and non-scheduled operations.														

NOTE: Above figures include both scheduled and non-scheduled operations.

## U.S. Local Service Airline Revenues and Expenses for Quarter Ending June 30, 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE INCOME TAXES
All American	\$ 895,329	\$ 449,446	\$ 401,452	\$ 19,261	\$ 2,830	\$ 2,018	\$ 18,270	\$ 988,120	\$ 464,176	\$ 523,944	\$ -92,791
Boonsa	291,628	138,399	152,833	325	1,386	2,394	299,559	138,060	161,499	161,499	69
Central	291,461	109,895	250,297	1,917	3,225	1,309	2,568	523,778	238,046	285,732	-232,317
Empire	285,071	132,396	142,739	3,548	...	721	3,947	257,853	131,698	126,155	27,218
Frontier	1,225,175	438,058	733,541	6,146	32,444	1,975	8,375	1,156,224	531,703	624,521	68,951
Lake Central	354,795	88,347	253,555	5,085	...	786	3,097	325,731	145,266	180,465	29,064
MCA	260,331	159,351	91,796	3,026	2,328	663	2,729	256,928	100,064	156,864	3,403
Mid-West**	41,271	2,478	38,669	...	...	8	...	57,303	19,051	38,252	-16,032
Hobbs***	451,201	253,748	176,137	6,640	3,266	743	5,225	457,417	231,643	225,774	-4,216
Quark	727,253	204,568	512,602	7,488	...	1,316	...	706,290	377,075	329,215	20,963
Piedmont	1,001,850	782,662	188,265	9,138	10,720	6,102	2,211	982,865	502,694	480,171	18,985
Pioneer	1,020,931	721,472	258,312	7,575	16,635	6,961	...	1,036,535	490,755	545,780	-15,604
Southwest	712,653	294,073	403,668	10,341	...	1,676	1,638	785,658	395,333	390,325	-73,005
Trans-Texas	804,623	477,575	294,080	5,856	12,394	1,790	5,079	678,019	301,069	376,950	126,604
West Coast	671,672	218,577	409,952	2,708	6,784	1,454	25,458	653,912	289,888	364,024	17,760
Wiggins	363,602	215,531	130,629	1,848	5,438	739	8,379	327,012	140,962	186,050	36,590
Wis. Central	78,518	5,533	70,862	833	...	13	1,022	75,747	27,803	47,944	-2,771
TOTALS	10,230,842	5,047,833	4,875,459	105,391	96,044	31,255	90,392	10,322,066	4,894,434	5,427,632	-91,224
Helicopter Mail Service											
Hel. Air Service	132,966	...	131,845	...	...	...	...	107,209	61,850	45,358	25,757
Los Angeles	80,145	...	79,967	...	...	...	...	105,177	58,978	46,199	-25,032
Figures for Mid-West Airlines Not Previously Reported											
Mid-West (Mar. Qu.)	86,164	3,115	82,979	...	...	19	...	94,159	35,243	58,916	-7,995
Mid-West (Apr.)	29,640	1,465	28,068	...	...	6	...	32,374	11,569	20,805	-2,734
Mid-West (May)	17,049	1,021	16,022	...	...	2	...	23,688	7,482	16,206	-6,639

## U.S. Local Service Airline Revenues and Expenses for 6 Mos. Ending June 30, 1952

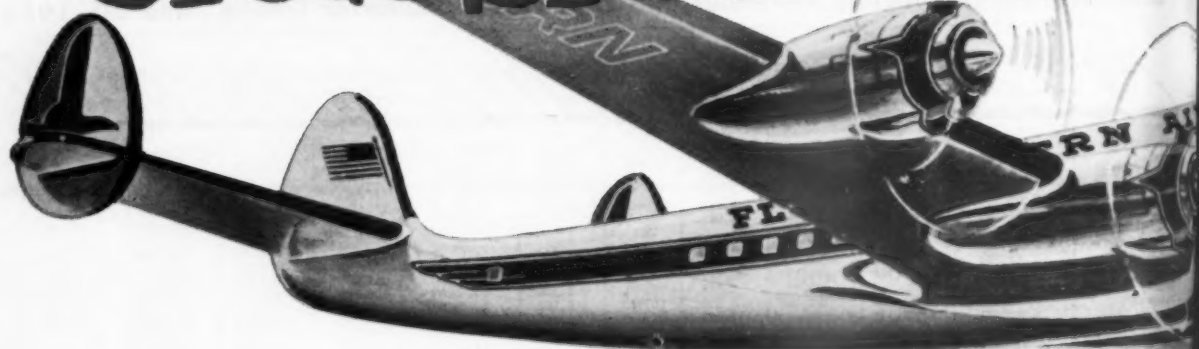
AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE INCOME TAXES
All American	\$ 1,654,438	\$ 716,336	\$ 850,503	\$ 37,323	\$ . . .	\$ 3,322	\$ 38,021	\$ 1,929,579	\$ 917,326	\$ 1,012,253	\$ -275,091
Boonsa	574,952	240,584	320,565	657	4,329	2,612	3,393	575,124	258,539	316,585	-172
Central	641,949	172,798	534,117	3,482	5,412	2,031	11,635	1,020,510	444,550	575,960	-378,561
Empire	544,233	228,413	294,985	5,751	. . .	1,393	10,286	529,314	257,185	272,129	14,919
Frontier	2,349,370	775,739	1,478,374	10,971	57,314	4,283	14,837	2,242,865	1,045,932	1,196,933	106,505
Lake Central	647,704	143,876	486,640	10,687	. . .	1,151	8,324	670,421	314,693	355,728	-21,717
MCA*	429,775	261,938	151,664	5,742	4,750	1,096	3,878	490,772	191,672	299,100	-60,997
Mid-West	127,435	5,593	121,648	. . .	. . .	27	. . .	151,462	54,294	97,168	-21,027
Hobbs***	839,794	424,891	365,221	11,533	7,723	1,222	18,043	930,176	473,304	456,872	-20,882
Quark	1,434,340	319,037	1,099,644	12,399	. . .	1,990	. . .	1,386,529	726,715	659,814	47,811
Piedmont	1,898,674	1,362,034	477,276	15,413	19,270	10,428	8,317	1,948,795	990,540	958,255	-50,121
Pioneer	1,916,421	1,297,025	540,143	11,873	32,756	11,601	1,927	1,975,610	931,434	1,044,176	-59,189
Southwest	1,348,804	543,325	774,312	19,089	. . .	3,180	1,638	1,555,704	785,221	770,483	-206,900
Southern	1,357,075	774,511	512,469	10,817	26,784	2,939	7,775	1,304,505	571,594	732,911	52,570
Trans-Texas	1,328,522	415,901	832,701	3,809	15,227	2,503	46,076	1,316,252	599,815	716,437	12,270
West Coast	684,072	357,360	306,676	3,194	10,271	1,308	13,417	644,234	284,269	359,965	-49,838
Wiggins	158,723	8,232	147,417	1,236	. . .	18	1,361	146,355	52,973	93,382	12,368
Wis. Central	1,216,786	554,265	643,046	24,336	. . .	2,832	. . .	1,347,154	643,853	703,301	-130,368
TOTALS	19,163,117	8,606,856	9,928,401	190,312	183,836	53,836	189,428	20,165,361	9,558,909	10,606,452	-1,002,244
Helicopter Mail Service											
Hel. Air Service	253,190	. . . .	251,979	. . .	. . .	. . .	. . .	214,371	126,124	88,246	38,819
Los Angeles	161,768	. . . .	159,590	. . .	. . .	. . .	. . .	197,966	109,815	88,151	-36,198
* Figures cover local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case.											
** Mid-West Airlines terminated its local service operations May 15, 1952, due to non-renewal of the line's certificate by CAB.											
*** Formerly Robinson Airlines Corp. Change in name was effective August 23, 1952, per CAB order M6689.											

\* Figures cover local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case.

\*\* Mid-West Airlines terminated its local service operations May 15, 1952, due to non-renewal of the line's certificate by CAB.

\*\*\* Formerly Robinson Airlines Corp. Change in name was effective August 23, 1952, per CAB order B5659.

# Eastern's **NEW** Great Silver Fleet

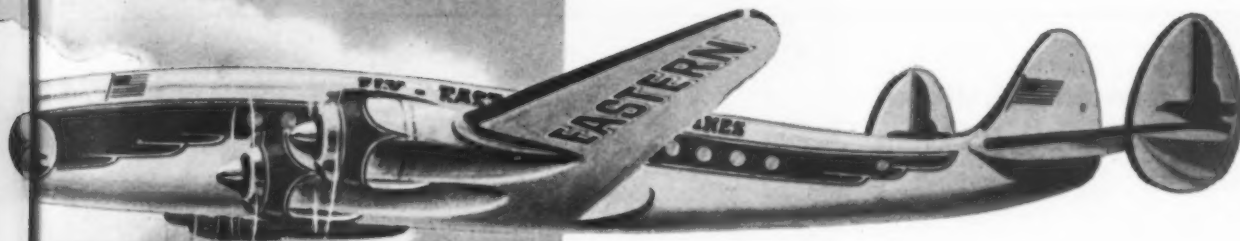


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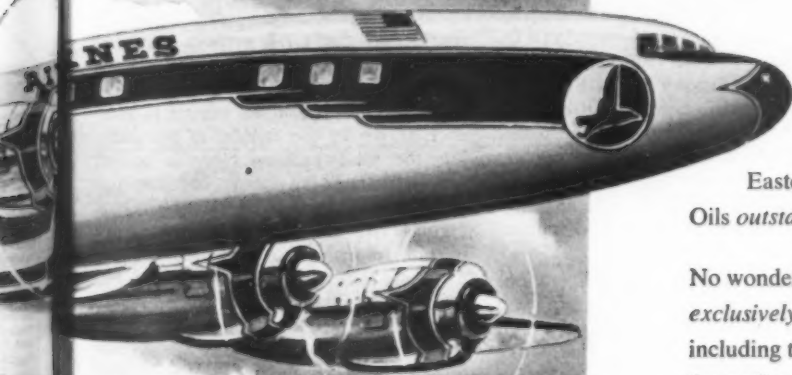


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# International Report

## BIATA Faced with Urgent New Equipment Problem

The provision of new equipment for British independent airlines is becoming increasingly urgent. The companies at present use three main types of medium and long range aircraft (all obsolescent)—the Vickers Viking, Douglas DC-3, and Avro York; the only pressurized aircraft operated by the independents is a Handley Page Hermes (BOAC surplus) now flying for Airwork.

Concerned about the present position, the British Independent Air Transport Association has suggested that the U.K. government will have to "prime the pump" either by guaranteeing private capital loans or by ordering the aircraft and making them available to the operators on a hire-purchase basis. Even if this aid came, there would still be a major difficulty—delivery delays; the independents would be at the end of very long waiting lines.

## Decision Near on BCPA, TEA Control Status

Decisions will soon be reached on the future of British Commonwealth Pacific Airlines and Tasman Empire Airways, Australian Civil Aviation Minister H. L. Anthony told AMERICAN AVIATION in an exclusive interview. The

most likely result will be the taking over of the entire ownership of BCPA by Australia with New Zealand assuming full control of TEA; the United Kingdom will pull out of both airlines. Anthony indicated that BCPA and Qantas Empire Airways would integrate their operations.

Discussing equipment questions, the minister showed himself to be extremely jet-conscious. He felt that Australian National Airways and Trans-Australia Airlines would be well set-up when each had received its six Vickers Viscounts now on order.

He confirmed that Qantas needed additional long-range equipment and indicated that Tasman Empire Airways is very interested in the Bristol Britannia. Anthony singled out for special mention Scottish Aviation's Twin-Pioneer feeder transport which he thought eminently suited to Australian "outback" operating conditions. He did not see any immediate requirement for a DC-3 replacement.

Anthony envisaged coach operations being adopted in Australia before long but was less optimistic on the subject of Pacific tourist fares. He felt that while reduced standards of comfort might be tolerable on such relatively short routes as the North Atlantic, the long haul across the Pacific was a very different matter. Nevertheless, he thought airlines should do their utmost to promote cheaper-fare operations and to tap the mass travel market.

## Crew Blamed for BOAC Hermes Accident

Criticism of the crew members (except the engineering officer and cabin attendants) is contained in the French report on the accident to a BOAC Handley-Page Hermes which made a crash landing in the Sahara last May, 1,300 miles off course. The plane was on a flight from Tripoli to Kano, but came down at a point some 500 miles north-east of Dakar.

In chronological order, the causes of the accident are listed as: faulty use by the navigator of the variation setting control on the CL2 gyrosyn compass; faulty checking of the compasses by an incorrect astral bearing and without the aid of radio bearings; incorrect inference drawn by the captain in pronouncing the CL2 gyrosyn compass correct and the PL12 magnetic compass unserviceable; a fault (in breach of BOAC regulations) on the part of the captain in not returning to Tripoli when the magnetic compass was regarded as unserviceable; inability of the crew to realize that the astral bearing was taken on the wrong stars; inability of the crew to determine the aircraft's position properly by the standard methods when the variation setting control error was discovered; lack of decisive action on the part of the captain once he knew he had lost his way; ignorance on the part of the crew of the assistance which could have been afforded by Atar airfield.

These factors finally resulted in the need to make the forced landing which brought about the accident, the aircraft having by then exhausted its supply of fuel before reaching an airport.

## Japan to Build FD-25

Toyo Aircraft Co. of Tokyo has become the first aviation firm to plan plane production in Japan since World War II as a result of its just-concluded licensing agreement with Fletcher Aviation Corp. Toyo has obtained rights to build and sell Fletcher's FD-25 single-engine lightplane to non-Communist nations "in the traditional marketing areas of Japan." The FD-25, originally designed as a rocket launcher and fire-bomb carrier for use by military ground forces, will be freighted to Tokyo and reassembled there for pilot production.

## French to Build Jet Transport Prototypes

The French government has given the green light to two companies for the construction of prototype jet transports—SNCA du Sud-Est will build the SE 210 and Hurel-Dubois the HD 45 (see page 17). On the basis of flight tests one of the two models will be adopted as the French entry in the jet-liner field.

Powered by two 9,000-pound thrust Rolls-Royce Avon RA 16's in nacelles at the rear of the fuselage, the SE 210 will carry 70 passengers at a cruising speed of 497 mph. Main data: span, 111 ft. 5 in.; length, 111 ft. 8 in.; wing area, 1,528.5 sq. ft.; aspect ratio, 7; wing

sweep-back, 22½°; gross weight, about 79,000 pounds; payload, about 14,500 pounds.

Derived from the HD 21 piston-engine all-cargo model, the prototype of which is due to fly early in 1953, the Hurel-Dubois HD 45 features a high-aspect-ratio wing. It will carry 80 passengers at a cruising speed of 455 mph over stages from 1,120 to 1,865 miles. Two 9,000-pound thrust gas turbines (probably Avon RA 16's) will power the jet. The manufacturer claims that the HD 45's operating cost on a ton-mile basis will be 50% lower than that of "existing jet transports."



**Built in 14 months** by SNCA duSud-Ouest, the SO 4050 Vautour swept-wing, twin-jet "supersonic class" fighter has made its first flight. Power is provided by two 6,200-pound thrust SNECMA Atar turbojets.

## German Aircraft Industry Revives

Despite a lack of capital, West Germany's foremost aircraft companies could become a major component of the European aircraft industry according to a survey made this month.

• **Focke-Wulf** is still the only pre-war German aircraft company active in the aeronautical field; it is building high-performance sailplanes at a plant in Bremen.

• **Heinkel** is currently the most ambitious of the ex-aircraft firms (Professor Heinkel has said he would like to build the Comet). Tooling at the company's large Stuttgart-Zuffenhausen plant would enable engine components to be manufactured without too much difficulty. The factory could be expanded and converted to aircraft production relatively easily.

• **Bornier** has a design office in Spain at the present time. Part of the Dornier plant at Oberpfaffenhofen is intact and would be suitable for assembly work.

• **Henschel's Kassel** plant is currently engaged on heavy engineering work—truck and locomotive components. German observers believe that if the company returned to the aviation field it would be best suited to the production of gas turbines. A number of ex-Junkers men are working with Henschel.

• **Weser**, which achieved distinction in World War II for its mass production of the Junker Ju 87 dive bomber, is currently engaged in marine engineering work but has spare production space which could be used to build aircraft.

• **Messerschmitt** is negotiating with numerous interests but the company is financially weak.

### IN BRIEF

Britain's crescent-wing jet bomber, the Handley Page HP 80, will fly soon. The flight test program has been delayed as a result of slight damage incurred to the plane shortly after its completion.

Blackburn and General Aircraft Ltd. has acquired the exclusive manufacturing and sales rights of the Turbomeca range of gas turbine engines throughout the United Kingdom and a large proportion of the British Commonwealth.

Slick Airways is closing a deal for the sale of a Douglas DC-6A to Japan Air Lines for delivery after the U.S. operator has received the first of three new DC-6A's from Douglas Aircraft Company. Price is understood to be in excess of \$1,500,000.

Vickers-Armstrong Ltd. is tooling up to boost output of the Viscount to rate of 100 aircraft a year; the company recently increased production of the turboprop transport from five to eight planes monthly.

The three British military attaches in Washington are relinquishing their posts and are not being replaced. Their functions, increasingly ceremonial in recent years, will be assumed by members of the British Joint Staff Mission.

Facilitation scored a victory in Europe recently when a new customs highway was opened connecting the Swiss zone of Basle-Mulhouse airport, located in French territory, with Switzerland. It gives the Swiss free access to their zone at the airport; previously they had to pass through French police and customs controls.

Australian National Airways will get a \$9,000,000 Commonwealth Bank loan to finance the purchase of its six Vickers Viscounts under an agreement guaranteeing the company equal rights and privileges with the government-owned Trans-Australia Airlines.

A three-level fare structure is to be established between London and points in British African territories. Main difference between the two lower levels—tourist and coach—will be in equipment—BOAC will operate the tourist services with four-engine Handley-Page Hermes whereas the coach flights will be operated with twin-engine Vickers Vikings by Central African Airways and the British independents.

The South African Air Force's squadron in Korea will be flying North American F-86 Sabre jet fighters instead of F-51's by December. In the Union, Spitfires are being replaced by Vampires.

The Colombian government is to acquire all the airports now owned by Avianca, the nation's flag airline, and will operate them through a special corporation. About \$18,000,000 will be invested in the development of airports and facilities.

BOAC has ordered five Bristol Britannia turboprop freighters for use on all-cargo services. Delivery is scheduled for 1955/56. The corporation previously ordered 25 Britannias for passenger work.

To replace piston-engine Hawker Sea Fury equipment on Australian carriers, de Havilland's Australian plant is to build Sea Venom jet fighters. The factory has now delivered more than 60 of 80 Vampires, basically similar to the Sea Venom, for the RAAF and has test flown the first of 29 Vampire trainers.



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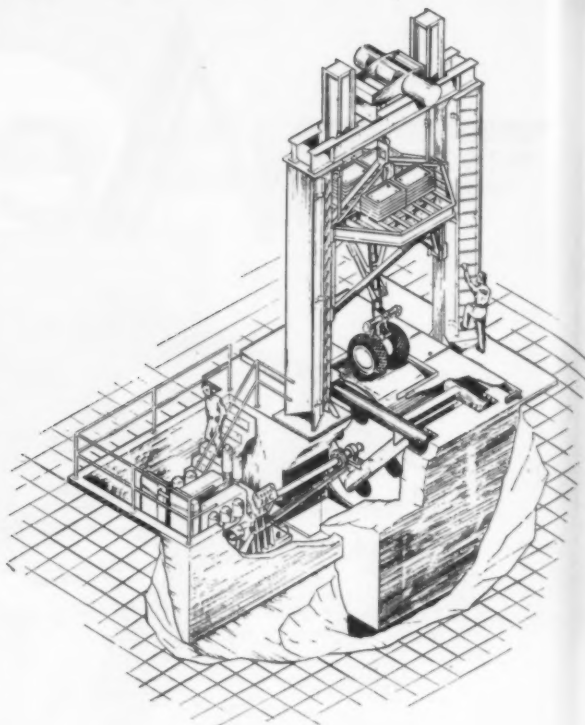
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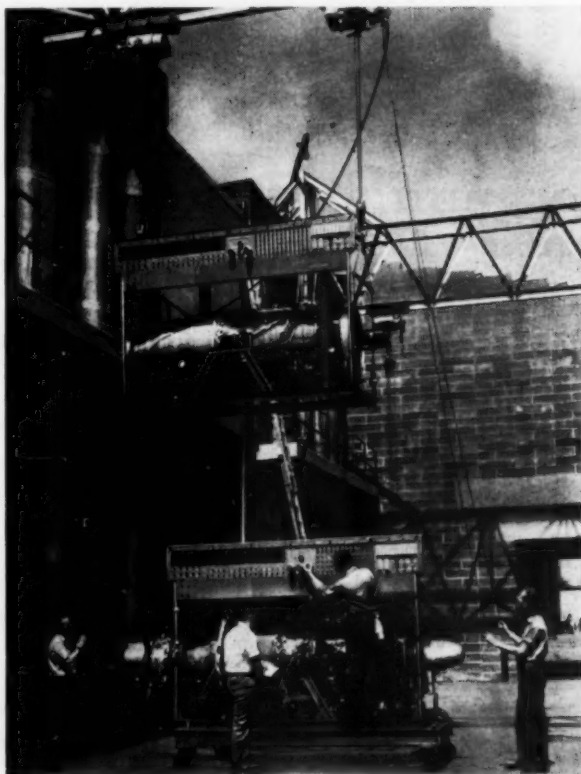
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## The Production Picture



**Landing Gear Shimmy** will be eliminated from experimental planes at Lockheed Aircraft Corp. by 230-ton tower and treadmill. Schematic drawing shows 21-foot tower for mounting landing gears; 30 ton weights applied to gear; and 10-foot diameter steel cylinder which spins below. Power for rotating drum is supplied by 375 hp diesel engine.



**Double Deck Test Cells** are being employed by Curtiss-Wright Corp. to save plant space, with heavy sound-deadening walls installed at the front end of the test chambers. The photo shows a Wright J-65 Sapphire turbojet being raised to the second floor cell while another is being set up for a test run in the lower test chamber.

## Production Spotlight



**Production line** methods such as are used in the manufacture of North American F-86D simulators for the USAF are Engineering & Research Corporation's selling point in its bid for the commercial simulator market. Scene shown in photo above of the company's Riverdale, Maryland, plant once provided the backdrop for another Erco production feat, manufacture of 35 Ercoupe light planes daily. The F-86D simulators shown weigh 22,000 pounds (4,000 pounds more than the fighter itself) and include approximately 100,000 parts, 1,152 electronic tubes, and 60 miles of wiring.

## Bell Wins Govt. Claim; May Set Precedent

When the U. S. Supreme Court, by a 4-4 vote with Justice H. Jackson not participating, upheld a \$2,286,819 claim by Bell Aircraft Corp. against the Government, it set a precedent which may widely influence future negotiations between the aircraft industry and the Navy and Air Force.

The case dates back to early World War II days and involves the sale of P-39 Airacobras. The company had amortized the cost of experimental, development, and tooling work on the P-39 against its original fixed price contracts. The Internal Revenue Bureau ruled, however, that amortization would have to be spread over Bell's entire P-39 production, including its subsequent cost-plus-fixed-fee contracts.

Bell at first refused, but in September, 1943, the Renegotiation Board approved the reallocation and the company split the reallocation into two claims. One was for \$1,299,856, the other for \$986,963.

When these claims were submitted to the then Army Air Corps, an assist-

ant resident auditor recommended rejection of both claims. He was overruled on the larger claim by the resident auditor and later by the contracting officer. But when the smaller claim came up for consideration later, a new resident auditor and a new contracting officer approved the assistant auditor's recommended rejection.

Still later the Comptroller General's office vetoed the larger claim and Bell decided to take its case to the U. S. Court of Claims. By a 3-2 decision, Bell won both judgments, one dissenting judge indicating willingness to approve the larger claim, another opposing both. At this point the Justice Department decided to carry the case to the highest court, whose split decision upheld the Claims Court's ruling.

## Hamilton Std. to Produce British Jet Starter

A liquid-fuel jet engine starter will be placed in production by the Hamilton Standard Division, United Aircraft Corporation, next year under a license

agreement with Plessey Co. Ltd., Ilford, Essex, England.

Said to be the first of its type to be manufactured in the U. S., the starter uses a mono-propellant, a fuel which burns and produces energy without air. Advantages of the unit are freedom from reliance on outside power sources, ease of installation, maintenance and re-charging, light weight, and low cost per start.

## AF to Spend \$10 Billion For Boeing B-47's, B-52's

Boeing Airplane Co. apparently will be engaged in large scale production of its B-47 and B-52 jet bombers for several years to come. Senior vice president Wellwood E. Beall, quoting a top defense official as his source, says the Air Force is planning to spend \$10 billion on production of the two planes.

The company thus far has turned out more than 300 Stratojets at Wichita and two B-52 prototypes at the Seattle plant. At current production costs, this amounts to more than \$1 billion.

Other production orders for military aircraft are still being placed. The Air Force, for example, has confirmed awarding an order for the North American Aviation F-100 supersonic interceptor, which will probably be powered by the Pratt & Whitney 10,000 pound-thrust J-57 engine. The F-100 is a scaled-up version of NAA's F-86 Sabre.

## NPA Grants New Power To APR Agency

Aircraft Production Resources Agency, the Munitions Board's allocation agency for military aircraft at Dayton, has received additional powers from the National Production Authority enabling it to schedule or reschedule deliveries of aircraft components provided the manufacturer concerned is willing.

As a result of the NPA amendment, APRA will be able to postpone deliveries of certain components until they are actually needed for the aircraft program, at the same time speeding up output of other parts. This has been possible until now but the change will eliminate much of the paper work.

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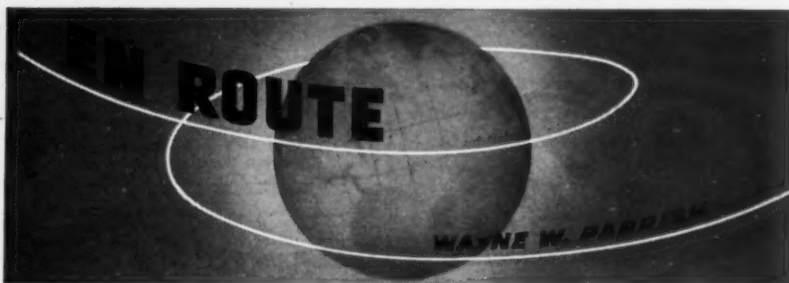
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Before I start telling you about any more foreign places (and I've been to a whole string of 'em since I finished the last series on France), I want to tell you about a favorite aviation haunt—the cocktail lounge of the Carlton Hotel in Washington, D. C.

It's one of the best-run cocktail lounges in the world (and takes especially good care of airline people). One reason is that the four waiters have a total service of employment of 74 years. Aviation folk know these four men by their first names—Bill, Vince, Al, and Waldo—but it's time they got better acquainted. Here they are:

**Vince and Waldo.** Vincent (Vince) Meola has been there the longest. He was born in Graci, Italy, in 1906 and came to the U. S. in 1921. He went to work for the Carlton when it first opened in 1926, stayed until 1929, and returned again in 1931, for a total of 24 years. He's married to an American girl and has a stepson.

Next in service is Waldo Spelta, born in Lafayette County, Missouri, in 1903. He came to Washington in 1922 on a freight train, went to work for the Carlton in 1932 and has been there ever since. He is married, no children, and has built a motel in Ocean City, Md. As soon as that business is well established he's going to retire and concentrate on running the motel.

**Bill and Al.** Christopher (Bill) Burazer was born in 1902 near Split on the Dalmatian coast of Yugoslavia (and out of the four he's the only one who really knows what *slivovic* is!). He went to sea, and eventually came to the U. S. and worked in New York, Detroit, Chicago, and Atlantic City. He began

with the Carlton in 1935, is married and has two daughters, and spends all his spare time gardening. He became an American citizen a few years ago.

Alfredo (Al) Barsanti was born in Lucca, Italy, in 1898, and came to the U. S. in 1914. He began at the Carlton in 1928, left and returned in 1929. He is married, has one stepson, and was naturalized in 1937.

**King.** But let's not forget King, the Chinese bus-boy who serves fried



Romaine



Waldo



Al



Judge Caynor

oysters, crab cakes, and other delicacies, and often gets bigger tips than the waiters. Always wearing a cheery grin, King worked on a merchant ship and for a British admiral during World War II. Then he worked for the Chinese embassy in Washington, and joined the Carlton six years ago.

He had quite a time getting his citizenship, but typical of the popularity of the Carlton lounge boys with steady patrons, a long-time customer with a big corporation took an interest in King's case and was largely instrumental in getting the papers through. King is married to an American girl and has one son.

give the Carlton a genuine personality, especially for aviation-people.

I have just one complaint about the Carlton's cocktail lounge. In the summer time when it's unbearably hot and humid, the management still insists on coat and tie. I agree about the coat, but in these days when more and more men are wearing light open-collared sport shirts on hot days I think the tie requirement is outmoded and somewhat ridiculous—so long as coats are worn. Are you listening, management?

Now that I've gotten the Carlton off my chest (and don't get any ideas that this plug will get me any free drinks because it won't), I'll be moving along to the latest trip which started out to be three weeks in Europe and ended up being almost six weeks going around the world.

I visited the island of Malta in the Mediterranean for the first time, I stayed overnight in Calcutta for the first time (and what a shocker that was), I had kangaroo tail soup in Amsterdam, I did some more driving in France and Switzerland, I took Rod MacInnes of Trans-Canada to an organ recital at Chartres Cathedral near Paris (and the overtones in that story will amuse you), I re-visited my favorite foreign city of Hong Kong for a wonderful five days, and so on and on. The slogan for this page remains as before—I print everything the *National Geographic* leaves out.



IN FOREGROUND, left to right, Vince, King and Bill, with bartenders in rear.



# The Washington View

## Men Wanted ?

OF THE MULTITUDE of federal government jobs, only about 2,500 top positions are filled or cleared directly by the White House. This doesn't mean that the White House doesn't exert influences in other positions, but the vast bulk of federal employees are protected by Civil Service, or are handled elsewhere. All of these positions are now "available" at the discretion of the new President.

Out of these 2,500 top positions, there are quite a few in the aviation field. Some of these are Civil Service, but must receive White House clearance. Except for hold-over appointments protected by law (such as members of the Civil Aeronautics Board), however, the White House has wide power to choose the men to fill these top spots.

In the Civil Aeronautics Administration, for example, here are the following positions (and salaries) which can be filled only with White House approval:

Administrator .....	\$15,000
Deputy administrator ...	13,000
Deputy adm.-planning ..	12,000
Chief, civil aviation mission .....	11,800
Exec. ass't to admin. ...	10,800
General counsel .....	11,800
International civil aviation officer .....	11,300
Personnel officer .....	10,800
Program evaluation officer	10,400
Regional administrators, ten jobs each at .....	11,750
Executive assistants, eight jobs each at ....	10,000
Director, airport program	11,800
Economist, airports .....	8,360
Airport planning specialist .....	7,840
Airport program analyst	7,240

In the Department of Commerce there are one or two positions usually filled for aviation purposes. The Secretary of Commerce gets \$22,500 per year, two Under-Secretaries get \$17,500 each, and two Assistant Secretaries get \$15,000 each. At least one of these is assigned to aviation matters.

The Civil Aeronautics Board has five members at \$15,000 each and these, once appointed and confirmed, cannot be removed without due cause. There is only one vacancy at present and another one will occur at the end of 1953 unless there are some resignations. But the CAB has other positions open at the discretion of the White House as follows:

Executive director of CAB .....	\$13,200
Director of bureau .....	12,200

General counsel .....	12,200
Economic consultant ....	9,600
Director, Alaska office ..	10,000

In the National Advisory Committee for Aeronautics, two men under the director receive the same salary as he does. Here is the NACA list:

Director .....	\$15,000
Executive Secretary ....	15,000
Associate director .....	15,000
Assistant directors, three each at .....	14,000
Executive officer .....	13,000
Personnel officer .....	11,050

At the Pentagon the Secretary of Defense receives \$22,500 per year and the Deputy Secretary receives \$20,000. There are quite a few positions under the Secretary of Defense, some of which will go to airmen.

The Secretary of the Navy receives \$18,000, the Under-Secretary \$15,000, and two Assistant Secretaries \$15,000 each. Also there is an Assistant Secretary for Air who receives \$15,000. Other top Navy positions may or may not be filled by men with air training and background.

The Department of the Air Force shapes up as follows:

Secretary of Air Force	\$18,000
Under Secretary .....	15,000
Assistant Secretaries, two each at .....	15,000
General counsel .....	13,200
Deputy general counsel .	12,000
Deputy director, public Relations .....	11,050
Deputy for manpower and organization ....	11,550
Deputy for personnel management .....	11,050
Director of civilian personnel .....	11,050
Legal adviser .....	11,800
Special ass't to Secretary	10,800
Business economist .....	9,800
Information specialist, two each at .....	9,800
Personnel officers, nine each at .....	8,740
Business economist, three each at .....	8,890
Attorney, aircraft and related procurement, two each .....	11,175
Production analyst, three each at .....	10,950
Attorney, procurement, two each at .....	9,600
Attorney, procurement, seven each at .....	8,530
Economist, procurement .	8,760

(Continued on next page)

## The Washington View

(Continued from previous page)

All of the above are the officially rated and salaried positions in the last Bureau of Budget data. Some salaries may change from time to time and also other positions may open and close.

These positions do not include the vast number of Civil Service positions which may be open. But anyone appointed to the positions listed above must be "cleared" by the White House. In other words, the President and his staff control these spots except for those filling unexpired positions protected by law.

## Russian Rockets

(Continued from Newsletter—Page 2)

trucks is designed to reduce acceleration to only about 3.5 g and thus may enable the pilot to take up a sitting instead of a prone position in the aircraft.

Although advantageous aerodynamically (by permitting reduction of frontal area) as well as minimizing the physical effects of high accelerations, the prone position entails numerous complications (including, in Soviet designs, a mirror system for observation of the instruments) and is not liked by pilots.

As indicated by the accompanying drawings, present Soviet development rocket fighters are still largely based on German designs (notably the Walter motor and the DFS 346 airframe). Nevertheless, the Russians have made noteworthy progress in the development of integral fuselage tanks to increase the functioning time of the motor and are busily engaged in research on the control of the motor once it has been fired, with the ultimate aim of enabling it to be stopped and restarted in flight.

On the debit side, the retraction system for the landing skids has given trouble (the turbojet model mentioned above has a conventional wheel gear). Furthermore, there has been no indication of experiments in ejecting the pilot's plexiglass "capsule".

Technical data on Soviet rocket fighters now flying shows them to be aircraft grossing about 15,000 pounds, 38 feet long, and with a span of 25 feet. These development models have a top speed of about 1,700 mph and operate at altitudes upward of 100,000 feet. Although hitherto they have been tested in the Moscow area—they are built at Poberesje, a research center north of the capital—test flying will henceforth be carried out at Tomsk in Siberia, an indication of the high security rating which the Kremlin now gives to rocket fighter development.

## News At Deadline

### Martin Bows Out With the Last 4-0-4

The Glenn L. Martin Co. will go out of the commercial transport business with the beginning of the new year, at which time it will deliver the last twin-engine 4-0-4. To date, 87 of the 4-0-4's have been delivered, and production will be complete at 103. Martin is working on bomber and guided missile projects, as well as on a jet flying boat for the Navy.

### Navy A3D Flies; F-100 Ordered

The various steps in the evolution of an aircraft are marked by recent announcements that one plane has made its first flight, another has attained supersonic speed, and a third has been ordered into production. First flight of 30 minutes was that of the Navy's newest attack bomber, the Douglas A3D. Supersonic speed was reached by the Dassault MD 452 Mystere IV, first French plane to do so. Ordered into production was the North American F-100, supersonic fighter which NAA will build for the USAF.

### First Flight of Production Nord 2501

First production model of "France's C-119," the Nord 2501, has flown, and the French air force has ordered 100 of the twin-engine cargo transports, with the possibility of an additional 77. Across the Channel, it has been revealed that English Electric Ltd. is currently building a four-jet, swept-wing bomber, in which the engines, probably Rolls-Royce Avons, will be mounted in pairs one above the other.

### Boeing: \$1.5 Billion

Backlog at Boeing Airplane Co. stood at \$1.5 billion on September 30, an increase of \$214 million over the figure a year earlier. Nine-month report cited net of \$10.2 million on sales of \$530 million.

### Navy Orders Sapphire Engine for Fighter

The J-65 Sapphire jet engine has been ordered by the Navy to power a new fighter, understood to be the North American FJ-3. The USAF had pre-

viously ordered the 7,200 pound-thrust engine from Wright Aeronautical Division for use in the Republic F-84F and the Martin B-57A Canberra.

### Layoff at Northrop Seen Likely

A temporary layoff of some 1,000 workers at Northrop Aircraft is foreseen by the company, which cites a shortage of certain materials as the cause. Work involved is on modification of the F-89D Scorpion.

In Washington, officials of the Aircraft Production Board, the Munitions Board, the Aircraft Industries Association, and the Northrop office said they had heard nothing of the reported materials shortage.

### Transport 'Copters For Army Units

Army helicopter companies, using mostly cargo and transport helicopters, are being formed, and three have already been organized. Backbone of such groups will be the big Sikorsky H-19's, Piasecki H-21's, and the Piasecki H-25, all of ten places or more.

### Air Cargo to Benefit From Rule Changes

Wider use of air cargo shipments by the Army is seen as a result of recent changes in military regulations and also as a result of action taken at a two-day meeting in Washington of the Air Cargo Advisory Board of the Air Transport Association.

Four regional zone offices have been set up by the Army's Transportation Corps (Pittsburgh, Memphis, St. Louis, Salt Lake City); these will be able to authorize air shipments between 500 and 5,000 pounds. Lighter shipments can be made without such authorization, and heavier ones must be cleared with Washington. Clearance from Washington was previously needed for all air cargo over 500 pounds. New regulations put air cargo shipments and those which travel by rail express on the same basis.

The ATA group, encouraged by these developments, formulated a plan whereby one airline would represent the industry in dealing with the Army in each zone, serving as a permanent contact.

*One-every  
twenty  
seconds!*



With Korea, demands on our services and facilities increased tremendously. For one thing, aircraft production plans were instantly accelerated. Then, too, new aircraft models . . . carrying many more precision instruments and accessories . . . were lifted off drafting boards much sooner than expected. So we faced an unforeseen . . . tremendously changed . . . much more complicated . . . development and production task. We tackled it head-on. As of today, our production has been expanded to 514% of our pre-Korea output. As an example, we're turning out one precision Synchro-type device every twenty seconds—a previously unheard of rate. We have added 2 new manufacturing divisions, 23 complete unit sub-contractors, and over 2300 parts sub-contractors. Here is evidence aplenty that we're leaving nothing undone to satisfy demand in full at the earliest possible moment.

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# The Navy takes to the air...

1911



On July 26, 1911, Glenn Curtiss put pontoons on his pusher type plane and flew it at San Diego, California, demonstrating to Navy officials the practicability of the hydro-plane. Enthusiastic over the experiments, the Navy soon placed an order for its first hydro-aero-plane shown here taking off.

1952



**NEW MEMBER** of the U. S. Navy fighter plane family, the Grumman F9F-6 Cougar is rated in the "over 650 miles an hour" class. A swept wing successor to the Panther, which was the first jet to be used in combat by the Navy, this new streamlined jet fighter is described as a much faster plane.

● Keeping pace with advancements in the science of flight through the years, Phillips Petroleum Company has always been alert to the very latest fuel and lubrication requirements for the latest type engines.

Phillips is today one of the nation's largest suppliers of aviation fuels for military and commercial as well as private use. It is the company's policy to be ready with improved fuels as the newest designs in turbo-props and jets are announced. This is in addition to a tremendous capacity for producing 115/145 grade aviation gasoline.

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